



SEQUENCE LISTING

<110> Van Rooijen, Gijs
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Heifetz, Peter Bernard
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Dalmia, Bipin Kumar
Del Val, Greg
Zaplachinski, Steve
Moloney, Maurice

<120> METHODS FOR THE PRODUCTION OF MULTIMERIC PROTEINS, AND RELATED COMPOSITIONS

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aaa cct ctt ctc ttc gaa gga tgg atg gct aac gac atc gct ccc ggt 144
Lys Pro Leu Leu Phe Glu Gly Trp Met Ala Asn Asp Ile Ala Pro Gly
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ggt caa cta aca acc acc acc gac gtc gag aat ttc ccc gga ttt cca 192
Gly Gln Leu Thr Thr Thr Thr Asp Val Glu Asn Phe Pro Gly Phe Pro
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gaa ggt att ctc gga gta gag ctc act gac aaa ttc cgt aaa caa tcg 240
Glu Gly Ile Leu Gly Val Glu Leu Thr Asp Lys Phe Arg Lys Gln Ser
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Glu Arg Phe Gly Thr Thr Ile Phe Thr Glu Thr Val Thr Lys Val Asp
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Phe Ser Ser Lys Pro Phe Lys Leu Phe Thr Asp Ser Lys Ala Ile Leu
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gct gac gct gtg att ctc gct act gga gct gtg gct aag cgg ctt agc 384
Ala Asp Ala Val Ile Leu Ala Thr Gly Ala Val Ala Lys Arg Leu Ser
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 35 40 45
 Gly Gln Leu Thr Thr Thr Thr Asp Val Glu Asn Phe Pro Gly Phe Pro
 50 55 60
 Glu Gly Ile Leu Gly Val Glu Leu Thr Asp Lys Phe Arg Lys Gln Ser
 65 70 75 80
 Glu Arg Phe Gly Thr Thr Ile Phe Thr Glu Thr Val Thr Lys Val Asp
 85 90 95
 Phe Ser Ser Lys Pro Phe Lys Leu Phe Thr Asp Ser Lys Ala Ile Leu
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 Ala Asp Ala Val Ile Leu Ala Thr Gly Ala Val Ala Lys Arg Leu Ser
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70 75 80
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85 90 95
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Val Gly Ala Lys Lys Asp Glu Leu Gln Ser Thr Ile Ala Lys His Leu
100 105 110
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gct taa gcttaataag tatgaactaa aatgcatgta ggtgtaagag ctcatggaga 1949
Ala *
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 <211> 114
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Arabidopsis thaliana

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Val Asp Phe Thr Ala Ser Trp Cys Gly Pro Cys Arg Phe Ile Ala Pro
          35          40          45
Phe Phe Ala Asp Leu Ala Lys Lys Leu Pro Asn Val Leu Phe Leu Lys
          50          55          60
Val Asp Thr Asp Glu Leu Lys Ser Val Ala Ser Asp Trp Ala Ile Gln
65          70          75          80
Ala Met Pro Thr Phe Met Phe Leu Lys Glu Gly Lys Ile Leu Asp Lys
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Val Val Gly Ala Lys Lys Asp Glu Leu Gln Ser Thr Ile Ala Lys His
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Leu Ala

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<210> 16
 <211> 3888
 <212> DNA
 <213> Artificial sequence

<220>
 <223> Chimeric: Arabidopsis oleosin gene derived from Arabidopsis thaliana fused with the phaseolin promotor and phaseolin terminator derived from Phaseolus vulgaris

<221> CDS
 <222> (1555) ... (1907)

<221> CDS
 <222> (2148) ... (2659)

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Ala	Asp	Thr	Ala	Arg	Gly	Thr	His	His	Asp	Ile	Ile	Gly	Arg	Asp	Gln	
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tac	ccg	atg	atg	ggc	cga	gac	cga	gac	cag	tac	cag	atg	tcc	gga	cga	1653
Tyr	Pro	Met	Met	Gly	Arg	Asp	Arg	Asp	Gln	Tyr	Gln	Met	Ser	Gly	Arg	
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gga	tct	gac	tac	tcc	aag	tct	agg	cag	att	gct	aaa	gct	gca	act	gct	1701
Gly	Ser	Asp	Tyr	Ser	Lys	Ser	Arg	Gln	Ile	Ala	Lys	Ala	Ala	Thr	Ala	
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gtc	aca	gct	ggg	ggg	tcc	ctc	ctt	gtt	ctc	tcc	agc	ctt	acc	ctt	gtt	1749
Val	Thr	Ala	Gly	Gly	Ser	Leu	Leu	Val	Leu	Ser	Ser	Leu	Thr	Leu	Val	
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Gly	Thr	Val	Ile	Ala	Leu	Thr	Val	Ala	Thr	Pro	Leu	Leu	Val	Ile	Phe	
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agc	cca	atc	ctt	gtc	ccg	gct	ctc	atc	aca	gtt	gca	ctc	ctc	atc	acc	1845
Ser	Pro	Ile	Leu	Val	Pro	Ala	Leu	Ile	Thr	Val	Ala	Leu	Leu	Ile	Thr	
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ggg	ttt	ctt	tcc	tct	gga	ggg	ttt	ggc	att	gcc	gct	ata	acc	gtt	ttc	1893
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Ser	Trp	Ile	Tyr	Lys					
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cat gac cgt gac cgt act cgt ggt ggc cag cac act acc atg gct tcg	2322
His Asp Arg Asp Arg Thr Arg Gly Gly Gln His Thr Thr Met Ala Ser	
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35 40 45
Ala Val Thr Ala Gly Gly Ser Leu Leu Val Leu Ser Ser Leu Thr Leu
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Val Gly Thr Val Ile Ala Leu Thr Val Ala Thr Pro Leu Leu Val Ile
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Phe Ser Pro Ile Leu Val Pro Ala Leu Ile Thr Val Ala Leu Leu Ile
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35 40 45
Arg Gly Gly Gln His Thr Thr Met Ala Ser Glu Glu Gly Gln Val Ile
50 55 60
Ala Cys His Thr Val Glu Thr Trp Asn Glu Gln Leu Gln Lys Ala Asn
65 70 75 80
Glu Ser Lys Thr Leu Val Val Val Asp Phe Thr Ala Ser Trp Cys Gly
85 90 95
Pro Cys Arg Phe Ile Ala Pro Phe Phe Ala Asp Leu Ala Lys Lys Leu
100 105 110
Pro Asn Val Leu Phe Leu Lys Val Asp Thr Asp Glu Leu Lys Ser Val
115 120 125
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<212> DNA
<213> Artificial Sequence

<220>
<223> Chimeric: Arabidopsis thioredoxin h gene and oleosin gene derived from
Arabidopsis thaliana fused with phaseolin promotor and phaseolin terminator
derived from Phaseolus vulgaris

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Asn	Glu	Gln	Leu	Gln	Lys	Ala	Asn	Glu	Ser	Lys	Thr	Leu	Val	Val	Val	
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Asp	Thr	Asp	Glu	Leu	Lys	Ser	Val	Ala	Ser	Asp	Trp	Ala	Ile	Gln	Ala	
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Val	Gly	Ala	Lys	Lys	Asp	Glu	Leu	Gln	Ser	Thr	Ile	Ala	Lys	His	Leu	
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Ala	Met	Ala	Asp	Thr	Ala	Arg	Gly	Thr	His	His	Asp	Ile	Ile	Gly	Arg	
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gac	cag	tac	ccg	atg	atg	ggc	cga	gac	cga	gac	cag	tac	cag	atg	tcc	1989
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gga	cga	gga	tct	gac	tac	tcc	aag	tct	agg	cag	att	gct	aaa	gct	gca	2037
Gly	Arg	Gly	Ser	Asp	Tyr	Ser	Lys	Ser	Arg	Gln	Ile	Ala	Lys	Ala	Ala	

150										155					160					
act gct gtc aca gct ggt ggt tcc ctc ctt gtt ctc tcc agc ctt acc	2085																			
Thr Ala Val Thr Ala Gly Gly Ser Leu Leu Val Leu Ser Ser Leu Thr																				
165 170 175																				
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Leu Val Gly Thr Val Ile Ala Leu Thr Val Ala Thr Pro Leu Leu Val																				
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Ile Phe Ser Pro Ile Leu Val Pro Ala Leu Ile Thr Val Ala Leu Leu																				
195 200 205																				
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Ile Thr Gly Phe Leu Ser Ser Gly Gly Phe Gly Ile Ala Ala Ile Thr																				
210 215 220 225																				
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Val Phe Ser Trp Ile Tyr Lys																				
230																				
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Tyr Ala Thr Gly Glu His Pro	235																			
cag gga tca gac aag ttg gac agt gca agg atg aag ttg gga agc aaa	2559																			
Gln Gly Ser Asp Lys Leu Asp Ser Ala Arg Met Lys Leu Gly Ser Lys																				
240 245 250 255																				
gct cag gat ctg aaa gac aga gct cag tac tac gga cag caa cat act	2607																			
Ala Gln Asp Leu Lys Asp Arg Ala Gln Tyr Tyr Gly Gln Gln His Thr																				
260 265 270																				
ggt ggg gaa cat gac cgt gac cgt act cgt ggt ggc cag cac act act	2655																			
Gly Gly Glu His Asp Arg Asp Arg Thr Arg Gly Gly Gln His Thr Thr																				
275 280 285																				
taa gcttaataag tatgaactaa aatgcatgta ggtgtaagag ctcatggaga	2708																			
*																				
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atctatacaa tcgttttagcc ttgctggacg actctcaatt atttaaacga gagtaaacat	3488																			
atttgacttt ttggttattt aacaaattat tatttaacac tatatgaaat tttttttttt	3548																			
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<210> 20

<211> 232
 <212> PRT
 <213> *Arabidopsis thaliana*

<400> 20
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 20 25 30
 Val Asp Phe Thr Ala Ser Trp Cys Gly Pro Cys Arg Phe Ile Ala Pro
 35 40 45
 Phe Phe Ala Asp Leu Ala Lys Lys Leu Pro Asn Val Leu Phe Leu Lys
 50 55 60
 Val Asp Thr Asp Glu Leu Lys Ser Val Ala Ser Asp Trp Ala Ile Gln
 65 70 75 80
 Ala Met Pro Thr Phe Met Phe Leu Lys Glu Gly Lys Ile Leu Asp Lys
 85 90 95
 Val Val Gly Ala Lys Lys Asp Glu Leu Gln Ser Thr Ile Ala Lys His
 100 105 110
 Leu Ala Met Ala Asp Thr Ala Arg Gly Thr His His Asp Ile Ile Gly
 115 120 125
 Arg Asp Gln Tyr Pro Met Met Gly Arg Asp Arg Asp Gln Tyr Gln Met
 130 135 140
 Ser Gly Arg Gly Ser Asp Tyr Ser Lys Ser Arg Gln Ile Ala Lys Ala
 145 150 155 160
 Ala Thr Ala Val Thr Ala Gly Gly Ser Leu Leu Val Leu Ser Ser Leu
 165 170 175
 Thr Leu Val Gly Thr Val Ile Ala Leu Thr Val Ala Thr Pro Leu Leu
 180 185 190
 Val Ile Phe Ser Pro Ile Leu Val Pro Ala Leu Ile Thr Val Ala Leu
 195 200 205
 Leu Ile Thr Gly Phe Leu Ser Ser Gly Gly Phe Gly Ile Ala Ala Ile
 210 215 220
 Thr Val Phe Ser Trp Ile Tyr Lys
 225 230

<210> 21
 <211> 55
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> *Arabidopsis thaliana*

<400> 21
 Tyr Ala Thr Gly Glu His Pro Gln Gly Ser Asp Lys Leu Asp Ser Ala
 1 5 10 15
 Arg Met Lys Leu Gly Ser Lys Ala Gln Asp Leu Lys Asp Arg Ala Gln
 20 25 30
 Tyr Tyr Gly Gln Gln His Thr Gly Gly Glu His Asp Arg Asp Arg Thr
 35 40 45
 Arg Gly Gly Gln His Thr Thr
 50 55

<210> 22
 <211> 3787
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Chimeric: *Arabidopsis* thioredoxin-reductase gene and oleosin gene derived from *Arabidopsis thaliana* fused with phaseolin promotor and phaseolin terminator derived from *Phaseolus vulgaris*

<221> CDS
<222> (1555) ... (2556)

<400> 22

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tatccctaca aattttattat ttgttaaaca ttttcaaacc gcataaaaatt ttatgaagtc 240
ccgtctatct ttaatgtagt ctaacatttt catattgaaa tatataattt acttaatttt 300
agcgttggtta gaaagcataa tgattttattc ttattcttct tcatataaat gtttaatatata 360
caatataaac aaattcttta ccttaagaag gatttcccat tttatatattt aaaaatatata 420
ttatcaaata tttttcaacc acgtaaatct cataataata agttggtttca aaagtaataa 480
aatttaactc cataattttt ttattcgact gatcttaaag caacacccag tgacacaact 540
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actactctac tactataata cccaaccca actcatattc aataactact tact atg 1557
Met
1

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aat ggt ctc gaa act cac aac aca agg ctc tgt atc gta gga agt ggc 1605
Asn Gly Leu Glu Thr His Asn Thr Arg Leu Cys Ile Val Gly Ser Gly
5 10 15

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cca gcg gca cac acg gcg gcg att tac gca gct agg gct gaa ctt aaa 1653
Pro Ala Ala His Thr Ala Ala Ile Tyr Ala Ala Arg Ala Glu Leu Lys
20 25 30

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cct ctt ctc ttc gaa gga tgg atg gct aac gac atc gct ccc ggt ggt 1701
Pro Leu Leu Phe Glu Gly Trp Met Ala Asn Asp Ile Ala Pro Gly Gly
35 40 45

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caa cta aca acc acc acc gac gtc gag aat ttc ccc gga ttt cca gaa 1749
Gln Leu Thr Thr Thr Thr Asp Val Glu Asn Phe Pro Gly Phe Pro Glu
50 55 60 65

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ggt att ctc gga gta gag ctc act gac aaa ttc cgt aaa caa tcg gag 1797
Gly Ile Leu Gly Val Glu Leu Thr Asp Lys Phe Arg Lys Gln Ser Glu
70 75 80

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cga ttc ggt act acg ata ttt aca gag acg gtg acg aaa gtc gat ttc 1845
Arg Phe Gly Thr Thr Ile Phe Thr Glu Thr Val Thr Lys Val Asp Phe
85 90 95

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tct tcg aaa ccg ttt aag cta ttc aca gat tca aaa gcc att ctc gct 1893
Ser Ser Lys Pro Phe Lys Leu Phe Thr Asp Ser Lys Ala Ile Leu Ala
100 105 110

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gac gct gtg att ctc gct act gga gct gtg gct aag cgg ctt agc ttc 1941
Asp Ala Val Ile Leu Ala Thr Gly Ala Val Ala Lys Arg Leu Ser Phe
115 120 125

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gtt gga tct ggt gaa ggt tct gga ggt ttc tgg aac cgt gga atc tcc 1989
Val Gly Ser Gly Glu Gly Ser Gly Gly Phe Trp Asn Arg Gly Ile Ser

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130	135	140	145	
gct tgt gct gtt tgc gac gga gct gct ccg ata ttc cgt aac aaa cct				2037
Ala Cys Ala Val Cys Asp Gly Ala Ala Pro Ile Phe Arg Asn Lys Pro	150	155	160	
ctt gcg gtg atc ggt gga ggc gat tca gca atg gaa gaa gca aac ttt				2085
Leu Ala Val Ile Gly Gly Gly Asp Ser Ala Met Glu Glu Ala Asn Phe	165	170	175	
ctt aca aaa tat gga tct aaa gtg tat ata atc cat agg aga gat gct				2133
Leu Thr Lys Tyr Gly Ser Lys Val Tyr Ile Ile His Arg Arg Asp Ala	180	185	190	
ttt aga gcg tct aag att atg cag cag cga gct ttg tct aat cct aag				2181
Phe Arg Ala Ser Lys Ile Met Gln Gln Arg Ala Leu Ser Asn Pro Lys	195	200	205	
att gat gtg att tgg aac tcg tct gtt gtg gaa gct tat gga gat gga				2229
Ile Asp Val Ile Trp Asn Ser Ser Val Val Glu Ala Tyr Gly Asp Gly	210	215	220	225
gaa aga gat gtg ctt gga gga ttg aaa gtg aag aat gtg gtt acc gga				2277
Glu Arg Asp Val Leu Gly Gly Leu Lys Val Lys Asn Val Val Thr Gly	230	235	240	
gat gtt tct gat tta aaa gtt tct gga ttg ttc ttt gct att ggt cat				2325
Asp Val Ser Asp Leu Lys Val Ser Gly Leu Phe Phe Ala Ile Gly His	245	250	255	
gag cca gct acc aag ttt ttg gat ggt ggt gtt gag tta gat tcg gat				2373
Glu Pro Ala Thr Lys Phe Leu Asp Gly Gly Val Glu Leu Asp Ser Asp	260	265	270	
ggt tat gtt gtc acg aag cct ggt act aca cag act agc gtt ccc gga				2421
Gly Tyr Val Val Thr Lys Pro Gly Thr Thr Gln Thr Ser Val Pro Gly	275	280	285	
gtt ttc gct gcg ggt gat gtt cag gat aag aag tat agg caa gcc atc				2469
Val Phe Ala Ala Gly Asp Val Gln Asp Lys Lys Tyr Arg Gln Ala Ile	290	295	300	305
act gct gca gga act ggg tgc atg gca gct ttg gat gca gag cat tac				2517
Thr Ala Ala Gly Thr Gly Cys Met Ala Ala Leu Asp Ala Glu His Tyr	310	315	320	
tta caa gag att gga tct cag caa ggt aag agt gat tga agcttaataa				2566
Leu Gln Glu Ile Gly Ser Gln Gln Gly Lys Ser Asp *	325	330		
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accatgtaac agtataataa ctgagctcca tctcacttct tctatgaata aacaaaggat				2686
ggtatgatat attaacactc tatctatgca ccttattgtt ctatgataaa tttcctctta				2746
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atgtgtacta taagactttc taaacaattc taacttttagc attgtgaacg agacataagt				2866
gttaagaaga cataacaatt ataatggaag aagtttgtct ccatttataat attatatatt				2926
accacttat gtattatatt aggatgttaa ggagacataa caattataaa gagagaagtt				2986
tgtatccatt tatatattat atactaccca tttatatatt atacttatcc acttatttaa				3046
tgtctttata aggtttgatc catgatattt ctaatatattt agttgatatg tatatgaaag				3106
ggtactattht gaactctctt actctgtata aaggttggat catccttaaa gtgggtctat				3166
ttaatttttat tgcttcttac agataaaaaa aaaattatga gttggtttga taaaatattg				3226
aaggatttaa aataataata aataataaat aacatataat atatgtatat aaatttatta				3286
taatataaca tttatctata aaaaagtaaa tattgtcata aatctataca atcgttttagc				3346
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taacaaatta ttattttaaca ctatatgaaa tttttttttt ttatcggcaa ggaaataaaa				3466
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tcaggtcggg gacaacaaaa aaacaggcaa gggaaatttt ttaatttggg ttgtcttggt				3586

tgctgcataa tttatgcagt aaaacactac acataaccct tttagcagta gagcaatggt 3646
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<210> 23
 <211> 333
 <212> PRT
 <213> Arabidopsis thaliana

<400> 23
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 Lys Pro Leu Leu Phe Glu Gly Trp Met Ala Asn Asp Ile Ala Pro Gly
 35 40 45
 Gly Gln Leu Thr Thr Thr Thr Asp Val Glu Asn Phe Pro Gly Phe Pro
 50 55 60
 Glu Gly Ile Leu Gly Val Glu Leu Thr Asp Lys Phe Arg Lys Gln Ser
 65 70 75 80
 Glu Arg Phe Gly Thr Thr Ile Phe Thr Glu Thr Val Thr Lys Val Asp
 85 90 95
 Phe Ser Ser Lys Pro Phe Lys Leu Phe Thr Asp Ser Lys Ala Ile Leu
 100 105 110
 Ala Asp Ala Val Ile Leu Ala Thr Gly Ala Val Ala Lys Arg Leu Ser
 115 120 125
 Phe Val Gly Ser Gly Glu Gly Ser Gly Gly Phe Trp Asn Arg Gly Ile
 130 135 140
 Ser Ala Cys Ala Val Cys Asp Gly Ala Ala Pro Ile Phe Arg Asn Lys
 145 150 155 160
 Pro Leu Ala Val Ile Gly Gly Gly Asp Ser Ala Met Glu Glu Ala Asn
 165 170 175
 Phe Leu Thr Lys Tyr Gly Ser Lys Val Tyr Ile Ile His Arg Arg Asp
 180 185 190
 Ala Phe Arg Ala Ser Lys Ile Met Gln Gln Arg Ala Leu Ser Asn Pro
 195 200 205
 Lys Ile Asp Val Ile Trp Asn Ser Ser Val Val Glu Ala Tyr Gly Asp
 210 215 220
 Gly Glu Arg Asp Val Leu Gly Gly Leu Lys Val Lys Asn Val Val Thr
 225 230 235 240
 Gly Asp Val Ser Asp Leu Lys Val Ser Gly Leu Phe Phe Ala Ile Gly
 245 250 255
 His Glu Pro Ala Thr Lys Phe Leu Asp Gly Gly Val Glu Leu Asp Ser
 260 265 270
 Asp Gly Tyr Val Val Thr Lys Pro Gly Thr Thr Gln Thr Ser Val Pro
 275 280 285
 Gly Val Phe Ala Ala Gly Asp Val Gln Asp Lys Lys Tyr Arg Gln Ala
 290 295 300
 Ile Thr Ala Ala Gly Thr Gly Cys Met Ala Ala Leu Asp Ala Glu His
 305 310 315 320
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 325 330

<210> 24
 <211> 4546
 <212> DNA
 <213> Artificial Sequence

<220>
 <221> CDS
 <222> (1555) ... (1907)

<221> CDS
 <222> (2148) ... (3315)

<223> Chimeric: Arabidopsis oleosin and thioredoxin-reductase gene derived from *Arabidopsis thaliana* fused with phaseolin promotor and phaseolin terminator derived from *Phaseolus vulgaris*.

<400> 24

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tatccctaca aatttattat ttgttaaaca ttttcaaacc gcataaaatt ttatgaagtc 240
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caatataaac aaattcttta ccttaagaag gatttcccat tttatatttt aaaaatatat 420
ttatcaaata tttttcaacc acgtaaatct cataataata agttgtttca aaagtaataa 480
aatttaactc cataattttt ttattcgact gatcttaaag caacaccag tgacacaact 540
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aaatttcacc aaacaatcat ttgtggtatt tctgaagcaa gtcagtgtat gcaaaattct 660
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actactctac tactataata cccaaccca actcatattc aatactactc tact atg 1557
Met
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gcg gat aca gct aga gga acc cat cac gat atc atc ggc aga gac cag 1605
Ala Asp Thr Ala Arg Gly Thr His His Asp Ile Ile Gly Arg Asp Gln
5 10 15

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tac ccg atg atg ggc cga gac cga gac cag tac cag atg tcc gga cga 1653
Tyr Pro Met Met Gly Arg Asp Arg Asp Gln Tyr Gln Met Ser Gly Arg
20 25 30

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gga tct gac tac tcc aag tct agg cag att gct aaa gct gca act gct 1701
Gly Ser Asp Tyr Ser, Lys Ser Arg Gln Ile Ala Lys Ala Ala Thr Ala
35 40 45

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gtc aca gct ggt ggt tcc ctc ctt gtt ctc tcc agc ctt acc ctt gtt 1749
Val Thr Ala Gly Gly Ser Leu Leu Val Leu Ser Ser Leu Thr Leu Val
50 55 60 65

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gga act gtc ata gct ttg act gtt gca aca cct ctg ctc gtt atc ttc 1797
Gly Thr Val Ile Ala Leu Thr Val Ala Thr Pro Leu Leu Val Ile Phe
70 75 80

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agc cca atc ctt gtc ccg gct ctc atc aca gtt gca ctc ctc atc acc 1845
Ser Pro Ile Leu Val Pro Ala Leu Ile Thr Val Ala Leu Leu Ile Thr
85 90 95

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ggt ttt ctt tcc tct gga ggg ttt ggc att gcc gct ata acc gtt ttc 1893
Gly Phe Leu Ser Ser Gly Gly Phe Gly Ile Ala Ala Ile Thr Val Phe
100 105 110

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tct tgg att tac aa gtaagcacac atttatcatc ttacttcata attttgtgca 1947
Ser Trp Ile Tyr Lys
115

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atatgtgcat gcatgtgttg agccagtagc tttggatcaa tttttttggg cgaataacaa 2007

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		Tyr	Ala	Thr	Gly Glu His Pro Gln Gly Ser	
		120			125	
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Asp Lys Leu Asp Ser Ala Arg Met Lys Leu Gly Ser Lys Ala Gln Asp						
130	135	140				
ctg aaa gac aga gct cag tac tac gga cag caa cat act ggt ggg gaa	2274					
Leu Lys Asp Arg Ala Gln Tyr Tyr Gly Gln Gln His Thr Gly Gly Glu						
145	150	155			160	
cat gac cgt gac cgt act cgt ggt ggc cag cac act acc atg aat ggt	2322					
His Asp Arg Asp Arg Thr Arg Gly Gly Gln His Thr Thr Met Asn Gly						
	165	170			175	
ctc gaa act cac aac aca agg ctc tgt atc gta gga agt ggc cca gcg	2370					
Leu Glu Thr His Asn Thr Arg Leu Cys Ile Val Gly Ser Gly Pro Ala						
	180	185			190	
gca cac acg gcg gcg att tac gca gct agg gct gaa ctt aaa cct ctt	2418					
Ala His Thr Ala Ala Ile Tyr Ala Ala Arg Ala Glu Leu Lys Pro Leu						
	195	200			205	
ctc ttc gaa gga tgg atg gct aac gac atc gct ccc ggt ggt caa cta	2466					
Leu Phe Glu Gly Trp Met Ala Asn Asp Ile Ala Pro Gly Gly Gln Leu						
	210	215			220	
aca acc acc acc gac gtc gag aat ttc ccc gga ttt cca gaa ggt att	2514					
Thr Thr Thr Thr Asp Val Glu Asn Phe Pro Gly Phe Pro Glu Gly Ile						
225	230	235			240	
ctc gga gta gag ctc act gac aaa ttc cgt aaa caa tcg gag cga ttc	2562					
Leu Gly Val Glu Leu Thr Asp Lys Phe Arg Lys Gln Ser Glu Arg Phe						
	245	250			255	
ggt act acg ata ttt aca gag acg gtg acg aaa gtc gat ttc tct tcg	2610					
Gly Thr Thr Ile Phe Thr Glu Thr Val Thr Lys Val Asp Phe Ser Ser						
	260	265			270	
aaa ccg ttt aag cta ttc aca gat tca aaa gcc att ctc gct gac gct	2658					
Lys Pro Phe Lys Leu Phe Thr Asp Ser Lys Ala Ile Leu Ala Asp Ala						
	275	280			285	
gtg att ctc gct act gga gct gtg gct aag cgg ctt agc ttc gtt gga	2706					
Val Ile Leu Ala Thr Gly Ala Val Ala Lys Arg Leu Ser Phe Val Gly						
	290	295			300	
tct ggt gaa ggt tct gga ggt ttc tgg aac cgt gga atc tcc gct tgt	2754					
Ser Gly Glu Gly Ser Gly Gly Phe Trp Asn Arg Gly Ile Ser Ala Cys						
305	310	315			320	
gct gtt tgc gac gga gct gct ccg ata ttc cgt aac aaa cct ctt gcg	2802					
Ala Val Cys Asp Gly Ala Ala Pro Ile Phe Arg Asn Lys Pro Leu Ala						
	325	330			335	
gtg atc ggt gga ggc gat tca gca atg gaa gaa gca aac ttt ctt aca	2850					
Val Ile Gly Gly Gly Asp Ser Ala Met Glu Glu Ala Asn Phe Leu Thr						
	340	345			350	
aaa tat gga tct aaa gtg tat ata atc cat agg aga gat gct ttt aga	2898					
Lys Tyr Gly Ser Lys Val Tyr Ile Ile His Arg Arg Asp Ala Phe Arg						
	355	360			365	
gcg tct aag att atg cag cag cga gct ttg tct aat cct aag att gat	2946					

Ala	Ser	Lys	Ile	Met	Gln	Gln	Arg	Ala	Leu	Ser	Asn	Pro	Lys	Ile	Asp		
370						375					380						
gtg	att	tgg	aac	tcg	tct	gtt	gtg	gaa	gct	tat	gga	gat	gga	gaa	aga	2994	
Val	Ile	Trp	Asn	Ser	Ser	Val	Val	Glu	Ala	Tyr	Gly	Asp	Gly	Glu	Arg		
385					390					395					400		
gat	gtg	ctt	gga	gga	ttg	aaa	gtg	aag	aat	gtg	gtt	acc	gga	gat	gtt	3042	
Asp	Val	Leu	Gly	Gly	Leu	Lys	Val	Lys	Asn	Val	Val	Thr	Gly	Asp	Val		
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Val	Ile	Ala	Leu	Thr	Val	Ala	Thr	Pro	Leu	Leu	Val	Ile	Phe	Ser	Pro				

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Tyr	Tyr	Gly	Gln	Gln	His	Thr	Gly	Gly	Glu	His	Asp	Arg	Asp	Arg	Thr
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<220>
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 <222> (1555) ... (1907)

<221> CDS
 <222> (2148) ... (3690)

<223> Chimeric: Arabidopsis oleosin gene derived from *arabidopsis thaliana* fused to Mlep thioredoxin-reductase and thioredoxin gene derived from *Mycobacterium leprae* fused with the phaseolin promotor and phaseolin terminator derived from *Phaseolus vulgaris*

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Gly Ser Asp Tyr Ser Lys Ser Arg Gln Ile Ala Lys Ala Ala Thr Ala						
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Val Thr Ala Gly Gly Ser Leu Leu Val Leu Ser Ser Leu Thr Leu Val						
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Gly Thr Val Ile Ala Leu Thr Val Ala Thr Pro Leu Leu Val Ile Phe						
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115						
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His Asp Arg Asp Arg Thr Arg Gly Gly Gln His Thr Thr Met Asn Thr						
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Thr Pro Ser Ala His Glu Thr Ile His Glu Val Ile Val Ile Gly Ser						
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195 200 205						

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acc Thr 225	acc Thr	gag Glu	gtg Val	gaa Glu	aac Asn 230	tac Tyr	cca Pro	ggt Gly	ttt Phe	cgc Arg 235	aac Asn	ggc Gly	ata Ile	acc Thr	ggc Gly 240	2514
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gaa Glu	ctg Leu	cgg Arg	acc Thr 260	gaa Glu	gac Asp	gtc Val	gag Glu	tcg Ser 265	gta Val	tca Ser	ttg Leu	cgt Arg	ggc Gly 270	ccg Pro	atc Ile	2610
aaa Lys	tcg Ser	gtc Val 275	gtc Val	acc Thr	gct Ala	gaa Glu	gga Gly 280	cag Gln	act Thr	tat Tyr	cag Gln	gcc Ala 285	cga Arg	gcc Ala	gtc Val	2658
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caa Gln 305	gaa Glu	ttg Leu	cta Leu	gga Gly	cgt Arg 310	ggc Gly	gtg Val	agt Ser	gca Ala	tgc Cys 315	gcg Ala	acc Thr	tgc Cys	gac Asp	ggg Gly 320	2754
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cgc Arg 370	gcc Ala	cgt Arg	aac Asn	aat Asn	gac Asp	aag Lys 375	atc Ile	aaa Lys	ttc Phe	atc Ile	acc Thr 380	aac Asn	cac His	acc Thr	gtg Val	2946
gtc Val 385	gcg Ala	gtg Val	aac Asn	ggg Gly	tat Tyr 390	aca Thr	aca Thr	gtg Val	acc Thr	gga Gly 395	ttg Leu	cgg Arg	ttg Leu	cgt Arg	aac Asn 400	2994
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tcg Ser 450	atg Met	gac Asp	ggc Gly	gtt Val	ttt Phe	gcg Ala 455	gcc Ala	ggc Gly	gac Asp	ctg Leu	gta Val 460	gat Asp	cgc Arg	acc Thr	tac Tyr	3186
cgg Arg	cag Gln	gcg Ala	atc Ile	act Thr	gcc Ala	gca Ala	ggt Gly	agt Ser	ggc Gly	tgt Cys	gcc Ala	gcc Ala	gcc Ala	atc Ile	gac Asp	3234

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Ala Glu Arg Trp Leu Ala Glu His Ala Gly Ser Lys Ala Asn Glu Thr	485	490	495	
aca gag gaa act gga gac gtt gac agt acc gac aca acc gat tgg agc				3330
Thr Glu Glu Thr Gly Asp Val Asp Ser Thr Asp Thr Thr Asp Trp Ser	500	505	510	
act gcg atg act gac gcc aag aac gcc ggg gtc aca ata gaa gtg acc				3378
Thr Ala Met Thr Asp Ala Lys Asn Ala Gly Val Thr Ile Glu Val Thr	515	520	525	
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Val Asp Phe Trp Ala Thr Trp Cys Gly Pro Cys Lys Met Val Ala Pro	545	550	555	560
gta ctc gaa gag atc gcg tcc gaa caa cga aac cag ctc act gtc gcc				3522
Val Leu Glu Glu Ile Ala Ser Glu Gln Arg Asn Gln Leu Thr Val Ala	565	570	575	
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Lys Leu Asp Val Asp Thr Asn Pro Glu Met Ala Arg Glu Phe Gln Val	580	585	590	
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Val Ser Ile Pro Thr Met Ile Leu Phe Gln Gly Gly Gln Pro Val Lys	595	600	605	
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<213> Mycobacterium leprae

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Arg	Gly	Ser	Asp	Tyr	Ser	Lys	Ser	Arg	Gln	Ile	Ala	Lys	Ala	Ala	Thr
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	50					55					60				
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65				70					75					80	
Phe	Ser	Pro	Ile	Leu	Val	Pro	Ala	Leu	Ile	Thr	Val	Ala	Leu	Leu	Ile
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Thr	Gly	Phe	Leu	Ser	Ser	Gly	Gly	Phe	Gly	Ile	Ala	Ala	Ile	Thr	Val
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<211> 513

<212> PRT

<213> Mycobacterium leprae

<400> 32

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Ala	Ala	Leu	Tyr	Ala	Ala	Arg	Ala	Gln	Leu	Thr	Pro	Leu	Val	Phe	Glu
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Gly	Thr	Ser	Phe	Gly	Gly	Ala	Leu	Met	Thr	Thr	Thr	Glu	Val	Glu	Asn
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Met	Arg	Glu	Gln	Ala	Leu	Arg	Phe	Gly	Ala	Glu	Leu	Arg	Thr	Glu	Asp
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Val	Glu	Ser	Val	Ser	Leu	Arg	Gly	Pro	Ile	Lys	Ser	Val	Val	Thr	Ala
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Glu	Gly	Gln	Thr	Tyr	Gln	Ala	Arg	Ala	Val	Ile	Leu	Ala	Met	Gly	Thr
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Ser	Val	Arg	Tyr	Leu	Gln	Ile	Pro	Gly	Glu	Gln	Glu	Leu	Leu	Gly	Arg
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Gly	Val	Ser	Ala	Cys	Ala	Thr	Cys	Asp	Gly	Ser	Phe	Phe	Arg	Gly	Gln
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Glu	Phe	Arg	Ala	Ser	Lys	Ile	Met	Leu	Gly	Arg	Ala	Arg	Asn	Asn	Asp
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Lys	Ile	Lys	Phe	Ile	Thr	Asn	His	Thr	Val	Val	Ala	Val	Asn	Gly	Tyr
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Val	Leu	Val	Lys	Gly	Arg	Thr	Thr	Ser	Thr	Ser	Met	Asp	Gly	Val	Phe
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Glu	His	Ala	Gly	Ser	Lys	Ala	Asn	Glu	Thr	Thr	Glu	Glu	Thr	Gly	Asp
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Lys	Asn	Ala	Gly	Val	Thr	Ile	Glu	Val	Thr	Asp	Ala	Ser	Phe	Phe	Ala
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Asp	Val	Leu	Ser	Ser	Asn	Lys	Pro	Val	Leu	Val	Asp	Phe	Trp	Ala	Thr
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Trp	Cys	Gly	Pro	Cys	Lys	Met	Val	Ala	Pro	Val	Leu	Glu	Glu	Ile	Ala
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Ser	Glu	Gln	Arg	Asn	Gln	Leu	Thr	Val	Ala	Lys	Leu	Asp	Val	Asp	Thr
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Asn	Pro	Glu	Met	Ala	Arg	Glu	Phe	Gln	Val	Val	Ser	Ile	Pro	Thr	Met
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Ile	Leu	Phe	Gln	Gly	Gly	Gln	Pro	Val	Lys	Arg	Ile	Val	Gly	Ala	Lys
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Asn

<210> 33
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<220>
 <221> CDS
 <222> (1554) ... (1906)

<221> CDS
 <222> (2147) ... (3701)

<223> Chimeric: Arabidopsis oleosin and thioredoxin-reductase genes and linker derived from *Arabidopsis Thaliana* fused with phaseolin promotor and terminator derived from *Phaseolus Vulgaris*.

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agcgttggtta	gaaagcataa	agattttattc	ttattcttct	tcatataaat	gtttaatatata	360
caatataaac	aaattcttta	ccttaagaag	gatttcccat	tttatatttt	aaaaatatata	420
ttatcaaata	tttttcaacc	acgtaaatct	cataataata	agttgtttca	aaagtaataa	480
aattttaactc	cataattttt	ttattcgact	gatcttaaag	caacaccag	tgacacaact	540
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tataacattt	atgggtggact	aattttcata	tatttcttat	tgcttttacc	ttttcttggt	1020
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atgcatgggt	cttgcgcaag	aaaaagacaa	agaacaaaga	aaaaagacaa	aacagagaga	1140
caaaacgcaa	tcacacaacc	aactcaaatt	agtcactggc	tgatcaagat	cgccgcgtcc	1200
atgtatgtct	aaatgccatg	caaagcaaca	cgtgcttaac	atgcacttta	aatggctcac	1260
ccatctcaac	ccacacacaa	acacattgcc	tttttcttca	tcatcaccac	aaccacctgt	1320

atatattcat	tctcttccgc	cacctcaatt	tcttcacttc	aacacacgtc	aacctgcata	1380
tgcgtgtcat	cccatgccca	aatctccatg	catgttccaa	ccaccttctc	tcttatataa	1440
tacctataaa	tacctcta	atcactcact	tctttcatca	tccatccatc	cagagtacta	1500
ctactctact	actataatac	cccaacccaa	ctcatattca	atactactct	act atg	1556
					Met	
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gcg gat aca gct aga gga acc cat cac gat atc atc ggc aga gac cag	1604					
Ala Asp Thr Ala Arg Gly Thr His His Asp Ile Ile Gly Arg Asp Gln						
	5		10		15	
tac ccg atg atg ggc cga gac cga gac cag tac cag atg tcc gga cga	1652					
Tyr Pro Met Met Gly Arg Asp Arg Asp Gln Tyr Gln Met Ser Gly Arg						
	20		25		30	
gga tct gac tac tcc aag tct agg cag att gct aaa gct gca act gct	1700					
Gly Ser Asp Tyr Ser Lys Ser Arg Gln Ile Ala Lys Ala Ala Thr Ala						
	35		40		45	
gtc aca gct ggt ggt tcc ctc ctt gtt ctc tcc agc ctt acc ctt gtt	1748					
Val Thr Ala Gly Gly Ser Leu Leu Val Leu Ser Ser Leu Thr Leu Val						
	50		55		60	65
gga act gtc ata gct ttg act gtt gca aca cct ctg ctc gtt atc ttc	1796					
Gly Thr Val Ile Ala Leu Thr Val Ala Thr Pro Leu Leu Val Ile Phe						
	70		75		80	
agc cca atc ctt gtc ccg gct ctc atc aca gtt gca ctc ctc atc acc	1844					
Ser Pro Ile Leu Val Pro Ala Leu Ile Thr Val Ala Leu Leu Ile Thr						
	85		90		95	
ggt ttt ctt tcc tct gga ggg ttt ggc att gcc gct ata acc gtt ttc	1892					
Gly Phe Leu Ser Ser Gly Gly Phe Gly Ile Ala Ala Ile Thr Val Phe						
	100		105		110	
tct tgg att tac aa gtaagcacac atttatcatc ttacttcata attttgtgca	1946					
Ser Trp Ile Tyr Lys						
	115					
atatgtgcat gcatgtgttg agccagtagc tttggatcaa tttttttggt cgaataacaa	2006					
atgtaacaat aagaaattgc aaattctagg gaacatttgg ttaactaaat acgaaatttg	2066					
acctagctag cttgaatgtg tctgtgtata tcatctatat aggtaaaatg cttggtatga	2126					
tacctattga ttgtgaatag g tac gca acg gga gag cac cca cag gga tca	2177					
	Tyr Ala Thr Gly Glu His Pro Gln Gly Ser					
	120		125			
gac aag ttg gac agt gca agg atg aag ttg gga agc aaa gct cag gat	2225					
Asp Lys Leu Asp Ser Ala Arg Met Lys Leu Gly Ser Lys Ala Gln Asp						
	130		135		140	
ctg aaa gac aga gct cag tac tac gga cag caa cat act ggt ggg gaa	2273					
Leu Lys Asp Arg Ala Gln Tyr Tyr Gly Gln Gln His Thr Gly Gly Glu						
	145		150		155	160
cat gac cgt gac cgt act cgt ggt ggc cag cac act acc atg aat ggt	2321					
His Asp Arg Asp Arg Thr Arg Gly Gly Gln His Thr Thr Met Asn Gly						
	165		170		175	
ctc gaa act cac aac aca agg ctc tgt atc gta gga agt ggc cca gcg	2369					
Leu Glu Thr His Asn Thr Arg Leu Cys Ile Val Gly Ser Gly Pro Ala						
	180		185		190	
gca cac acg gcg gcg att tac gca gct agg gct gaa ctt aaa cct ctt	2417					
Ala His Thr Ala Ala Ile Tyr Ala Ala Arg Ala Glu Leu Lys Pro Leu						
	195		200		205	
ctc ttc gaa gga tgg atg gct aac gac atc gct ccc ggt ggt caa cta	2465					

Leu	Phe	Glu	Gly	Trp	Met	Ala	Asn	Asp	Ile	Ala	Pro	Gly	Gly	Gln	Leu	
	210					215					220					
aca	acc	acc	acc	gac	gtc	gag	aat	ttc	ccc	gga	ttt	cca	gaa	ggc	att	2513
Thr	Thr	Thr	Thr	Asp	Val	Glu	Asn	Phe	Pro	Gly	Phe	Pro	Glu	Gly	Ile	
225					230					235					240	
ctc	gga	gta	gag	ctc	act	gac	aaa	ttc	cgt	aaa	caa	tcg	gag	cga	ttc	2561
Leu	Gly	Val	Glu	Leu	Thr	Asp	Lys	Phe	Arg	Lys	Gln	Ser	Glu	Arg	Phe	
				245					250					255		
ggc	act	acg	ata	ttt	aca	gag	acg	gtg	acg	aaa	gtc	gat	ttc	tct	tcg	2609
Gly	Thr	Thr	Ile	Phe	Thr	Glu	Thr	Val	Thr	Lys	Val	Asp	Phe	Ser	Ser	
			260					265					270			
aaa	ccg	ttt	aag	cta	ttc	aca	gat	tca	aaa	gcc	att	ctc	gct	gac	gct	2657
Lys	Pro	Phe	Lys	Leu	Phe	Thr	Asp	Ser	Lys	Ala	Ile	Leu	Ala	Asp	Ala	
		275					280					285				
gtg	att	ctc	gct	act	gga	gct	gtg	gct	aag	cgg	ctt	agc	ttc	gtt	gga	2705
Val	Ile	Leu	Ala	Thr	Gly	Ala	Val	Ala	Lys	Arg	Leu	Ser	Phe	Val	Gly	
	290					295					300					
tct	ggc	gaa	ggc	tct	gga	ggc	ttc	tgg	aac	cgt	gga	atc	tcc	gct	tgt	2753
Ser	Gly	Glu	Gly	Ser	Gly	Gly	Phe	Trp	Asn	Arg	Gly	Ile	Ser	Ala	Cys	
305					310					315					320	
gct	gtt	tgc	gac	gga	gct	gct	ccg	ata	ttc	cgt	aac	aaa	cct	ctt	gcg	2801
Ala	Val	Cys	Asp	Gly	Ala	Ala	Pro	Ile	Phe	Arg	Asn	Lys	Pro	Leu	Ala	
				325					330					335		
gtg	atc	ggc	gga	ggc	gat	tca	gca	atg	gaa	gaa	gca	aac	ttt	ctt	aca	2849
Val	Ile	Gly	Gly	Gly	Asp	Ser	Ala	Met	Glu	Glu	Ala	Asn	Phe	Leu	Thr	
			340					345					350			
aaa	tat	gga	tct	aaa	gtg	tat	ata	atc	cat	agg	aga	gat	gct	ttt	aga	2897
Lys	Tyr	Gly	Ser	Lys	Val	Tyr	Ile	Ile	His	Arg	Arg	Asp	Ala	Phe	Arg	
		355					360					365				
gcg	tct	aag	att	atg	cag	cag	cga	gct	ttg	tct	aat	cct	aag	att	gat	2945
Ala	Ser	Lys	Ile	Met	Gln	Gln	Arg	Ala	Leu	Ser	Asn	Pro	Lys	Ile	Asp	
	370					375					380					
gtg	att	tgg	aac	tcg	tct	gtt	gtg	gaa	gct	tat	gga	gat	gga	gaa	aga	2993
Val	Ile	Trp	Asn	Ser	Ser	Val	Val	Glu	Ala	Tyr	Gly	Asp	Gly	Glu	Arg	
385					390					395					400	
gat	gtg	ctt	gga	gga	ttg	aaa	gtg	aag	aat	gtg	gtt	acc	gga	gat	gtt	3041
Asp	Val	Leu	Gly	Gly	Leu	Lys	Val	Lys	Asn	Val	Val	Thr	Gly	Asp	Val	
			405						410					415		
tct	gat	tta	aaa	gtt	tct	gga	ttg	ttc	ttt	gct	att	ggc	cat	gag	cca	3089
Ser	Asp	Leu	Lys	Val	Ser	Gly	Leu	Phe	Phe	Ala	Ile	Gly	His	Glu	Pro	
			420					425					430			
gct	acc	aag	ttt	ttg	gat	ggc	ggc	gtt	gag	tta	gat	tcg	gat	ggc	tat	3137
Ala	Thr	Lys	Phe	Leu	Asp	Gly	Gly	Val	Glu	Leu	Asp	Ser	Asp	Gly	Tyr	
		435					440					445				
gtt	gtc	acg	aag	cct	ggc	act	aca	cag	act	agc	gtt	ccc	gga	gtt	ttc	3185
Val	Val	Thr	Lys	Pro	Gly	Thr	Thr	Gln	Thr	Ser	Val	Pro	Gly	Val	Phe	
	450					455					460					
gct	gcg	ggc	gat	gtt	cag	gat	aag	aag	tat	agg	caa	gcc	atc	act	gct	3233
Ala	Ala	Gly	Asp	Val	Gln	Asp	Lys	Lys	Tyr	Arg	Gln	Ala	Ile	Thr	Ala	
465					470					475					480	

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Ala Gly Thr Gly Cys Met Ala Ala Leu Asp Ala Glu His Tyr Leu Gln	
485 490 495	
gag att gct gga tgc aag gct aac gag acc acc gag gaa act gga gat	3329
Glu Ile Ala Gly Ser Lys Ala Asn Glu Thr Thr Glu Glu Thr Gly Asp	
500 505 510	
gtt gac tcg acg gat act acg gat tgg tcg acg gct atg gaa gaa gga	3377
Val Asp Ser Thr Asp Thr Thr Asp Trp Ser Thr Ala Met Glu Glu Gly	
515 520 525	
caa gtg atc gcc tgc cac acc gtt gag aca tgg aac gag cag ctt cag	3425
Gln Val Ile Ala Cys His Thr Val Glu Thr Trp Asn Glu Gln Leu Gln	
530 535 540	
aag gct aat gaa tcc aaa act ctt gtg gtg gtt gat ttc acg gct tct	3473
Lys Ala Asn Glu Ser Lys Thr Leu Val Val Val Asp Phe Thr Ala Ser	
545 550 555 560	
tgg tgt gga cca tgt cgt ttc atc gct cca ttc ttt gct gat ttg gct	3521
Trp Cys Gly Pro Cys Arg Phe Ile Ala Pro Phe Phe Ala Asp Leu Ala	
565 570 575	
aag aaa ctt cct aac gtg ctt ttc ctc aag gtt gat act gat gaa ttg	3569
Lys Lys Leu Pro Asn Val Leu Phe Leu Lys Val Asp Thr Asp Glu Leu	
580 585 590	
aag tcg gtg gca agt gat tgg gcg ata cag gcg atg cca acc ttc atg	3617
Lys Ser Val Ala Ser Asp Trp Ala Ile Gln Ala Met Pro Thr Phe Met	
595 600 605	
ttt ttg aag gaa ggg aag att ttg gac aaa gtt gtt gga gcc aag aaa	3665
Phe Leu Lys Glu Gly Lys Ile Leu Asp Lys Val Val Gly Ala Lys Lys	
610 615 620	
gat gag ctt cag tct acc att gcc aaa cac ttg gct taagcttaaa	3711
Asp Glu Leu Gln Ser Thr Ile Ala Lys His Leu Ala	
625 630 635	
taagtatgaa ctaaaatgca tgtaggtgta agagctcatg gagagcatgg aatattgtat	3771
ccgaccatgt aacagtataa taactgagct ccatctcact tcttctatga ataaacaaag	3831
gatgttatga tatattaaca ctctatctat gcaccttatt gttctatgat aaatttcctc	3891
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caaatgtgta ctataagact ttctaatacaa ttctaacttt agcattgtga acgagacata	4011
agtgttaaga agacataaca attataatgg aagaagtgtt tctccattta tatattatat	4071
attaccact tatgtattat attaggatgt taaggagaca taacaattat aaagagagaa	4131
gtttgtatcc atttatatat tatatactac ccatttatat attatactta tccacttatt	4191
taatgtcttt ataaggtttg atccatgata tttctaatat tttagttgat atgtatatga	4251
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atttaacaaa ttattattta acactatatg aaattttttt tttttatcgg caaggaaata	4611
aaattaaatt aggagggaca atggtgtgtc ccaatcctta tacaaccaac ttccacagga	4671
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gtttgctgca taatttatgc agtaaaacac tacacataac ctttttagca gtagagcaat	4791
ggttgaccgt gtgcttagct tcttttattt tattttttta tcagcaaaga ataaataaaa	4851
taaaatgaga cacttcaggg atgtttcaac ccttatacaa aaccccaaaa acaagtttcc	4911
tagcacccta ccaactaagg tacc	4935

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<212> PRT

<213> Arabidopsis thaliana

<220>
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 <222> (1)...(118)

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 Gln Tyr Pro Met Met Gly Arg Asp Arg Asp Gln Tyr Gln Met Ser Gly
 20 25 30
 Arg Gly Ser Asp Tyr Ser Lys Ser Arg Gln Ile Ala Lys Ala Ala Thr
 35 40 45
 Ala Val Thr Ala Gly Gly Ser Leu Leu Val Leu Ser Ser Leu Thr Leu
 50 55 60
 Val Gly Thr Val Ile Ala Leu Thr Val Ala Thr Pro Leu Leu Val Ile
 65 70 75 80
 Phe Ser Pro Ile Leu Val Pro Ala Leu Ile Thr Val Ala Leu Leu Ile
 85 90 95
 Thr Gly Phe Leu Ser Ser Gly Gly Phe Gly Ile Ala Ala Ile Thr Val
 100 105 110
 Phe Ser Trp Ile Tyr Lys
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<210> 35
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 <212> PRT
 <213> Arabidopsis thaliana

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 <222> (1)...(55)
 <223> oleosin

<221> SITE
 <222> (56)...(383)
 <223> thioredoxin reductase

<221> SITE
 <222> (384)...(406)
 <223> linker

<221> SITE
 <222> (407)...(518)
 <223> thioredoxin

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 Tyr Ala Thr Gly Glu His Pro Gln Gly Ser Asp Lys Leu Asp Ser Ala
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 Arg Met Lys Leu Gly Ser Lys Ala Gln Asp Leu Lys Asp Arg Ala Gln
 20 25 30
 Tyr Tyr Gly Gln Gln His Thr Gly Gly Glu His Asp Arg Asp Arg Thr
 35 40 45
 Arg Gly Gly Gln His Thr Thr Met Asn Gly Leu Glu Thr His Asn Thr
 50 55 60
 Arg Leu Cys Ile Val Gly Ser Gly Pro Ala Ala His Thr Ala Ala Ile
 65 70 75 80
 Tyr Ala Ala Arg Ala Glu Leu Lys Pro Leu Leu Phe Glu Gly Trp Met
 85 90 95
 Ala Asn Asp Ile Ala Pro Gly Gly Gln Leu Thr Thr Thr Thr Asp Val
 100 105 110
 Glu Asn Phe Pro Gly Phe Pro Glu Gly Ile Leu Gly Val Glu Leu Thr
 115 120 125
 Asp Lys Phe Arg Lys Gln Ser Glu Arg Phe Gly Thr Thr Ile Phe Thr
 130 135 140
 Glu Thr Val Thr Lys Val Asp Phe Ser Ser Lys Pro Phe Lys Leu Phe
 145 150 155 160

Thr	Asp	Ser	Lys	Ala	Ile	Leu	Ala	Asp	Ala	Val	Ile	Leu	Ala	Thr	Gly
				165					170					175	
Ala	Val	Ala	Lys	Arg	Leu	Ser	Phe	Val	Gly	Ser	Gly	Glu	Gly	Ser	Gly
			180					185					190		
Gly	Phe	Trp	Asn	Arg	Gly	Ile	Ser	Ala	Cys	Ala	Val	Cys	Asp	Gly	Ala
		195					200					205			
Ala	Pro	Ile	Phe	Arg	Asn	Lys	Pro	Leu	Ala	Val	Ile	Gly	Gly	Gly	Asp
	210					215					220				
Ser	Ala	Met	Glu	Glu	Ala	Asn	Phe	Leu	Thr	Lys	Tyr	Gly	Ser	Lys	Val
225					230					235					240
Tyr	Ile	Ile	His	Arg	Arg	Asp	Ala	Phe	Arg	Ala	Ser	Lys	Ile	Met	Gln
			245					250						255	
Gln	Arg	Ala	Leu	Ser	Asn	Pro	Lys	Ile	Asp	Val	Ile	Trp	Asn	Ser	Ser
			260					265					270		
Val	Val	Glu	Ala	Tyr	Gly	Asp	Gly	Glu	Arg	Asp	Val	Leu	Gly	Gly	Leu
		275					280					285			
Lys	Val	Lys	Asn	Val	Val	Thr	Gly	Asp	Val	Ser	Asp	Leu	Lys	Val	Ser
	290					295					300				
Gly	Leu	Phe	Phe	Ala	Ile	Gly	His	Glu	Pro	Ala	Thr	Lys	Phe	Leu	Asp
305					310					315					320
Gly	Gly	Val	Glu	Leu	Asp	Ser	Asp	Gly	Tyr	Val	Val	Thr	Lys	Pro	Gly
			325					330						335	
Thr	Thr	Gln	Thr	Ser	Val	Pro	Gly	Val	Phe	Ala	Ala	Gly	Asp	Val	Gln
			340					345					350		
Asp	Lys	Lys	Tyr	Arg	Gln	Ala	Ile	Thr	Ala	Ala	Gly	Thr	Gly	Cys	Met
		355					360					365			
Ala	Ala	Leu	Asp	Ala	Glu	His	Tyr	Leu	Gln	Glu	Ile	Ala	Gly	Ser	Lys
	370					375					380				
Ala	Asn	Glu	Thr	Thr	Glu	Glu	Thr	Gly	Asp	Val	Asp	Ser	Thr	Asp	Thr
385					390					395					400
Thr	Asp	Trp	Ser	Thr	Ala	Met	Glu	Glu	Gly	Gln	Val	Ile	Ala	Cys	His
			405					410						415	
Thr	Val	Glu	Thr	Trp	Asn	Glu	Gln	Leu	Gln	Lys	Ala	Asn	Glu	Ser	Lys
			420					425					430		
Thr	Leu	Val	Val	Val	Asp	Phe	Thr	Ala	Ser	Trp	Cys	Gly	Pro	Cys	Arg
		435					440					445			
Phe	Ile	Ala	Pro	Phe	Phe	Ala	Asp	Leu	Ala	Lys	Lys	Leu	Pro	Asn	Val
	450					455					460				
Leu	Phe	Leu	Lys	Val	Asp	Thr	Asp	Glu	Leu	Lys	Ser	Val	Ala	Ser	Asp
465					470					475					480
Trp	Ala	Ile	Gln	Ala	Met	Pro	Thr	Phe	Met	Phe	Leu	Lys	Glu	Gly	Lys
			485					490						495	
Ile	Leu	Asp	Lys	Val	Val	Gly	Ala	Lys	Lys	Asp	Glu	Leu	Gln	Ser	Thr
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<210> 36
 <211> 458
 <212> PRT
 <213> Mycobacterium leprae

<400> 36
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 Ala Gln Leu Thr Pro Leu Val Phe Glu Gly Thr Ser Phe Gly Gly Ala
 35 40 45
 Leu Met Thr Thr Thr Glu Val Glu Asn Tyr Pro Gly Phe Arg Asn Gly
 50 55 60
 Ile Thr Gly Pro Glu Leu Met Asp Asp Met Arg Glu Gln Ala Leu Arg
 65 70 75 80
 Phe Gly Ala Glu Leu Arg Thr Glu Asp Val Glu Ser Val Ser Leu Arg
 85 90 95
 Gly Pro Ile Lys Ser Val Val Thr Ala Glu Gly Gln Thr Tyr Gln Ala

Arg	Ala	Val	100	Ile	Leu	Ala	Met	Gly	105	Thr	Ser	Val	Arg	Tyr	110	Leu	Gln	Ile
Pro	Gly	Glu	115	Gln	Glu	Leu	Leu	Gly	120	Arg	Gly	Val	Ser	Ala	125	Cys	Ala	Thr
Cys	Asp	Gly	130	Ser	Phe	Phe	Arg	Gly	135	Gln	Asp	Ile	Ala	Val	140	Ile	Gly	Gly
145	Gly	Asp	145	Ser	Ala	Met	Glu	Glu	Ala	Leu	Phe	Leu	Thr	Arg	155	Phe	Ala	Arg
Ser	Val	Thr	165	Leu	Val	His	Arg	Arg	170	Asp	Glu	Phe	Arg	Ala	175	Ser	Lys	Ile
Met	Leu	Gly	180	Arg	Ala	Arg	Asn	Asn	185	Asp	Lys	Ile	Lys	Phe	190	Ile	Thr	Asn
His	Thr	Val	195	Val	Ala	Val	Asn	Gly	200	Tyr	Thr	Thr	Val	Thr	205	Gly	Leu	Arg
210	Leu	Arg	210	Asn	Thr	Thr	Thr	Gly	215	Glu	Glu	Thr	Thr	Leu	220	Val	Val	Thr
225	Val	Phe	225	Val	Ala	Ile	Gly	His	230	Glu	Pro	Arg	Ser	Ser	235	Leu	Val	Ser
Val	Val	Asp	245	Ile	Asp	Pro	Asp	Gly	250	Tyr	Val	Leu	Val	Lys	255	Gly	Arg	Thr
Thr	Ser	Thr	260	Ser	Met	Asp	Gly	Val	265	Phe	Ala	Ala	Gly	Asp	270	Leu	Val	Asp
Arg	Thr	Tyr	275	Arg	Gln	Ala	Ile	Thr	280	Ala	Ala	Gly	Ser	Gly	285	Cys	Ala	Ala
Ala	Ile	Asp	290	Ala	Glu	Arg	Trp	Leu	295	Ala	Glu	His	Ala	Gly	300	Ser	Lys	Ala
305	Asn	Glu	305	Thr	Thr	Glu	Glu	Thr	310	Gly	Asp	Val	Asp	Ser	315	Thr	Asp	Thr
Asp	Trp	Ser	325	Thr	Ala	Met	Thr	Asp	330	Ala	Lys	Asn	Ala	Gly	335	Val	Thr	Ile
Glu	Val	Thr	340	Asp	Ala	Ser	Phe	Phe	345	Ala	Asp	Val	Leu	Ser	350	Ser	Asn	Lys
Pro	Val	Leu	355	Val	Asp	Phe	Trp	Ala	360	Thr	Trp	Cys	Gly	Pro	365	Cys	Lys	Met
Val	Ala	Pro	370	Val	Leu	Glu	Glu	Ile	375	Ala	Ser	Glu	Gln	Arg	380	Asn	Gln	Leu
385	Thr	Val	385	Ala	Lys	Leu	Asp	Val	390	Asp	Thr	Asn	Pro	Glu	395	Met	Ala	Arg
Phe	Gln	Val	405	Val	Ser	Ile	Pro	Thr	410	Met	Ile	Leu	Phe	Gln	415	Gly	Gly	Gln
Pro	Val	Lys	420	Arg	Ile	Val	Gly	Ala	425	Lys	Gly	Lys	Ala	Ala	430	Leu	Leu	Arg
Asp	Leu	Ser	435	Asp	Val	Val	Pro	Asn	440	Leu	Asn				445			
450			450						455									

<210> 37
 <211> 471
 <212> PRT
 <213> Arabidopsis thaliana

<400> 37
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 Gly Pro Ala Ala His Thr Ala Ala Ile Tyr Ala Ala Arg Ala Glu Leu
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 Lys Pro Leu Leu Phe Glu Gly Trp Met Ala Asn Asp Ile Ala Pro Gly
 35 40 45
 Gly Gln Leu Thr Thr Thr Thr Asp Val Glu Asn Phe Pro Gly Phe Pro
 50 55 60
 Glu Gly Ile Leu Gly Val Glu Leu Thr Asp Lys Phe Arg Lys Gln Ser
 65 70 75 80
 Glu Arg Phe Gly Thr Thr Ile Phe Thr Glu Thr Val Thr Lys Val Asp
 85 90 95
 Phe Ser Ser Lys Pro Phe Lys Leu Phe Thr Asp Ser Lys Ala Ile Leu
 100 105 110

Ala	Asp	Ala	Val	Ile	Leu	Ala	Thr	Gly	Ala	Val	Ala	Lys	Arg	Leu	Ser
		115					120					125			
Phe	Val	Gly	Ser	Gly	Glu	Gly	Ser	Gly	Gly	Phe	Trp	Asn	Arg	Gly	Ile
	130					135					140				
Ser	Ala	Cys	Ala	Val	Cys	Asp	Gly	Ala	Ala	Pro	Ile	Phe	Arg	Asn	Lys
145					150					155					160
Pro	Leu	Ala	Val	Ile	Gly	Gly	Gly	Asp	Ser	Ala	Met	Glu	Glu	Ala	Asn
			165					170						175	
Phe	Leu	Thr	Lys	Tyr	Gly	Ser	Lys	Val	Tyr	Ile	Ile	His	Arg	Arg	Asp
		180						185					190		
Ala	Phe	Arg	Ala	Ser	Lys	Ile	Met	Gln	Gln	Arg	Ala	Leu	Ser	Asn	Pro
	195						200					205			
Lys	Ile	Asp	Val	Ile	Trp	Asn	Ser	Ser	Val	Val	Glu	Ala	Tyr	Gly	Asp
	210					215					220				
Gly	Glu	Arg	Asp	Val	Leu	Gly	Gly	Leu	Lys	Val	Lys	Asn	Val	Val	Thr
225					230					235					240
Gly	Asp	Val	Ser	Asp	Leu	Lys	Val	Ser	Gly	Leu	Phe	Phe	Ala	Ile	Gly
			245					250						255	
His	Glu	Pro	Ala	Thr	Lys	Phe	Leu	Asp	Gly	Gly	Val	Glu	Leu	Asp	Ser
		260						265					270		
Asp	Gly	Tyr	Val	Val	Thr	Lys	Pro	Gly	Thr	Thr	Gln	Thr	Ser	Val	Pro
	275						280					285			
Gly	Val	Phe	Ala	Ala	Gly	Asp	Val	Gln	Asp	Lys	Lys	Tyr	Arg	Gln	Ala
	290					295					300				
Ile	Thr	Ala	Ala	Gly	Thr	Gly	Cys	Met	Ala	Ala	Leu	Asp	Ala	Glu	His
305					310					315					320
Tyr	Leu	Gln	Glu	Ile	Ala	Gly	Ser	Lys	Ala	Asn	Glu	Thr	Thr	Glu	Glu
			325						330					335	
Thr	Gly	Asp	Val	Asp	Ser	Thr	Asp	Thr	Thr	Asp	Trp	Ser	Thr	Ala	Met
		340						345					350		
Glu	Glu	Gly	Gln	Val	Ile	Ala	Cys	Glu	Glu	Gly	Gln	Val	Ile	Ala	Cys
		355					360					365			
His	Thr	Val	Glu	Thr	Trp	Asn	Glu	Gln	Leu	Gln	Lys	Ala	Asn	Glu	Ser
	370					375					380				
Lys	Thr	Leu	Val	Val	Val	Asp	Phe	Thr	Ala	Ser	Trp	Cys	Gly	Pro	Cys
385					390					395					400
Arg	Phe	Ile	Ala	Pro	Phe	Phe	Ala	Asp	Leu	Ala	Lys	Lys	Leu	Pro	Asn
			405					410						415	
Val	Leu	Phe	Leu	Lys	Val	Asp	Thr	Asp	Glu	Leu	Lys	Ser	Val	Ala	Ser
			420					425					430		
Asp	Trp	Ala	Ile	Gln	Ala	Met	Pro	Thr	Phe	Met	Phe	Leu	Lys	Glu	Gly
		435					440					445			
Lys	Ile	Leu	Asp	Lys	Val	Val	Gly	Ala	Lys	Lys	Asp	Glu	Leu	Gln	Ser
	450					455					460				
Thr	Ile	Ala	Lys	His	Leu	Ala									
465					470										

<210> 38
 <211> 345
 <212> DNA
 <213> Arabidopsis thaliana

<220>
 <221> CDS
 <222> (1) ... (345)

<400> 38																
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Met	Ala	Ser	Glu	Glu	Gly	Gln	Val	Ile	Ala	Cys	His	Thr	Val	Glu	Thr	
1				5					10					15		
tgg	aac	gag	cag	ctt	cag	aag	gct	aat	gaa	tcc	aaa	act	ctt	gtg	gtg	96
Trp	Asn	Glu	Gln	Leu	Gln	Lys	Ala	Asn	Glu	Ser	Lys	Thr	Leu	Val	Val	
			20					25					30			
gtt	gat	ttc	acg	gct	tct	tgg	tgt	gga	cca	tgt	cgt	ttc	atc	gct	cca	144

Val	Asp	Phe	Thr	Ala	Ser	Trp	Cys	Gly	Pro	Cys	Arg	Phe	Ile	Ala	Pro		
		35					40					45					
ttc	ttt	gct	gat	ttg	gct	aag	aaa	ctt	cct	aac	gtg	ctt	ttc	ctc	aag	192	
Phe	Phe	Ala	Asp	Leu	Ala	Lys	Lys	Leu	Pro	Asn	Val	Leu	Phe	Leu	Lys		
		50				55				60							
gtt	gat	act	gat	gaa	ttg	aag	tcg	gtg	gca	agt	gat	tgg	gcg	ata	cag	240	
Val	Asp	Thr	Asp	Glu	Leu	Lys	Ser	Val	Ala	Ser	Asp	Trp	Ala	Ile	Gln		
		65			70					75					80		
gcg	atg	cca	acc	ttc	atg	ttt	ttg	aag	gaa	ggg	aag	att	ttg	gac	aaa	288	
Ala	Met	Pro	Thr	Phe	Met	Phe	Leu	Lys	Glu	Gly	Lys	Ile	Leu	Asp	Lys		
				85					90					95			
gtt	gtt	gga	gcc	aag	aaa	gat	gag	ctt	cag	tct	acc	att	gcc	aaa	cac	336	
Val	Val	Gly	Ala	Lys	Lys	Asp	Glu	Leu	Gln	Ser	Thr	Ile	Ala	Lys	His		
			100					105					110				
ttg	gct	taa														345	
Leu	Ala	*															

<210> 39
 <211> 114
 <212> PRT
 <213> Arabidopsis thaliana

<400> 39																	
Met	Ala	Ser	Glu	Glu	Gly	Gln	Val	Ile	Ala	Cys	His	Thr	Val	Glu	Thr		
1				5					10					15			
Trp	Asn	Glu	Gln	Leu	Gln	Lys	Ala	Asn	Glu	Ser	Lys	Thr	Leu	Val	Val		
			20					25					30				
Val	Asp	Phe	Thr	Ala	Ser	Trp	Cys	Gly	Pro	Cys	Arg	Phe	Ile	Ala	Pro		
		35					40					45					
Phe	Phe	Ala	Asp	Leu	Ala	Lys	Lys	Leu	Pro	Asn	Val	Leu	Phe	Leu	Lys		
	50					55				60							
Val	Asp	Thr	Asp	Glu	Leu	Lys	Ser	Val	Ala	Ser	Asp	Trp	Ala	Ile	Gln		
					70					75					80		
Ala	Met	Pro	Thr	Phe	Met	Phe	Leu	Lys	Glu	Gly	Lys	Ile	Leu	Asp	Lys		
				85					90					95			
Val	Val	Gly	Ala	Lys	Lys	Asp	Glu	Leu	Gln	Ser	Thr	Ile	Ala	Lys	His		
			100					105					110				
Leu	Ala																

<210> 40
 <211> 999
 <212> DNA
 <213> Arabidopsis thaliana

<220>
 <221> CDS
 <222> (1) ... (999)

<400> 40																	
atg	aat	ggt	ctc	gaa	act	cac	aac	aca	agg	ctc	tgt	atc	gta	gga	agt	48	
Met	Asn	Gly	Leu	Glu	Thr	His	Asn	Thr	Arg	Leu	Cys	Ile	Val	Gly	Ser		
1				5					10					15			
ggc	cca	gcg	gca	cac	acg	gcg	gcg	att	tac	gca	gct	agg	gct	gaa	ctt	96	
Gly	Pro	Ala	Ala	His	Thr	Ala	Ala	Ile	Tyr	Ala	Ala	Arg	Ala	Glu	Leu		
			20					25					30				
aaa	cct	ctt	ctc	ttc	gaa	gga	tgg	atg	gct	aac	gac	atc	gct	ccc	ggt	144	

Lys	Pro	Leu 35	Leu	Phe	Glu	Gly	Trp 40	Met	Ala	Asn	Asp	Ile 45	Ala	Pro	Gly	
ggt Gly	caa Gln 50	ctc Leu	aac Asn	caa Gln	cca Pro	ccg Pro 55	cgt Arg	gag Glu	aat Asn	ttc Phe	ccc Pro 60	gga Gly	ttt Phe	cca Pro	gaa Glu	192
ggt Gly 65	att Ile	ctc Leu	gga Gly	gta Val	gag Glu 70	ctc Leu	act Thr	gac Asp	aaa Lys	ttc Phe 75	cgt Arg	aaa Lys	caa Gln	tcg Ser	gag Glu 80	240
cga Arg	ttc Phe	ggt Gly	act Thr	acg Thr 85	ata Ile	ttt Phe	aca Thr	gag Glu	acg Thr 90	gtg Val	acg Thr	aaa Lys	gtc Val	gat Asp 95	ttc Phe	288
tct Ser	tcg Ser	aaa Lys	ccg Pro 100	ttt Phe	aag Lys	cta Leu	ttc Phe	aca Thr 105	gat Asp	tca Ser	aaa Lys	gcc Ala	att Ile 110	ctc Leu	gct Ala	336
gac Asp	gct Ala	gtg Val 115	att Ile	ctc Leu	gct Ala	atc Ile	gga Gly 120	gct Ala	gtg Val	gct Ala	aag Lys	tgg Trp 125	ctt Leu	agc Ser	ttc Phe	384
gtt Val	gga Gly 130	tct Ser	ggt Gly	gaa Glu	gtt Val	ctc Leu 135	gga Gly	ggt Gly	ttg Leu	tgg Trp	aac Asn 140	cgt Arg	gga Gly	atc Ile	tcc Ser	432
gct Ala 145	tgt Cys	gct Ala	gtt Val	tgc Cys	gac Asp 150	gga Gly	gct Ala	gct Ala	ccg Pro	ata Ile 155	ttc Phe	cgc Arg	aac Asn	aaa Lys	cct Pro 160	480
ctt Leu	gcg Ala	gtg Val	atc Ile	ggt Gly 165	gga Gly	ggc Gly	gat Asp	tct Ser	gca Ala 170	atg Met	gaa Glu	gaa Glu	gca Ala	aac Asn 175	ttt Phe	528
ctt Leu	aca Thr	aaa Lys	tat Tyr 180	gga Gly	tct Ser	aaa Lys	gtg Val	tat Tyr 185	ata Ile	atc Ile	gat Asp	agg Arg	aga Arg	gat Asp	gct Ala	576
ttt Phe	aga Arg	gcg Ala 195	tct Ser	aag Lys	att Ile	atg Met 200	cag Gln	cag Gln	cga Arg	gct Ala	ttg Leu	tct Ser 205	aat Asn	cct Pro	aag Lys	624
att Ile 210	gat Asp	gtg Val	att Ile	tgg Trp	aac Asn	tcg Ser 215	tct Ser	gtt Val	gtg Val	gaa Glu	gct Ala 220	tat Tyr	gga Gly	gat Asp	gga Gly	672
gaa Glu 225	aga Arg	gat Asp	gtg Val	ctt Leu	gga Gly 230	gga Gly	ttg Leu	aaa Lys	gtg Val	aag Lys 235	aat Asn	gtg Val	gtt Val	acc Thr	gga Gly 240	720
gat Asp	gtt Val	tct Ser	gat Asp	tta Leu 245	aaa Lys	gtt Val	tct Ser	gga Gly	ttg Leu 250	ttc Phe	ttt Phe	gct Ala	att Ile	ggt Gly 255	cat His	768
gag Glu	cca Pro	gct Ala	acc Thr 260	aag Lys	ttt Phe	ttg Leu	gat Asp 265	ggt Gly	ggt Gly	gtt Val	gag Glu	tta Leu	gat Asp 270	tcg Ser	gat Asp	816
ggt Gly	tat Tyr	gtt Val 275	gtc Val	acg Thr	aag Lys	cct Pro	ggt Gly 280	act Thr	aca Thr	cag Gln	act Thr	agc Ser 285	gtt Val	ccc Pro	gga Gly	864
gtt Val	ttc Phe 290	gct Ala	gcg Ala	ggt Gly	gat Asp	gtt Val 295	cag Gln	gat Asp	aag Lys	aag Lys	tat Tyr 300	agg Arg	caa Gln	gcc Ala	atc Ile	912

act	gct	gca	gga	act	ggg	tgc	atg	gca	gct	ttg	gat	gca	gag	cat	tac	960
Thr	Ala	Ala	Gly	Thr	Gly	Cys	Met	Ala	Ala	Leu	Asp	Ala	Glu	His	Tyr	
305					310					315					320	

tta	caa	gag	att	gga	tct	cag	caa	ggt	aag	agt	gat	tga				999
Leu	Gln	Glu	Ile	Gly	Ser	Gln	Gln	Gly	Lys	Ser	Asp	*				
				325					330							

<210> 41
 <211> 332
 <212> PRT
 <213> Arabidopsis thaliana

<400> 41

Met	Asn	Gly	Leu	Glu	Thr	His	Asn	Thr	Arg	Leu	Cys	Ile	Val	Gly	Ser
1				5					10					15	
Gly	Pro	Ala	Ala	His	Thr	Ala	Ala	Ile	Tyr	Ala	Ala	Arg	Ala	Glu	Leu
			20					25					30		
Lys	Pro	Leu	Leu	Phe	Glu	Gly	Trp	Met	Ala	Asn	Asp	Ile	Ala	Pro	Gly
		35					40					45			
Gly	Gln	Leu	Asn	Gln	Pro	Pro	Arg	Glu	Asn	Phe	Pro	Gly	Phe	Pro	Glu
	50					55				60					
Gly	Ile	Leu	Gly	Val	Glu	Leu	Thr	Asp	Lys	Phe	Arg	Lys	Gln	Ser	Glu
65				70					75					80	
Arg	Phe	Gly	Thr	Thr	Ile	Phe	Thr	Glu	Thr	Val	Thr	Lys	Val	Asp	Phe
			85					90						95	
Ser	Ser	Lys	Pro	Phe	Lys	Leu	Phe	Thr	Asp	Ser	Lys	Ala	Ile	Leu	Ala
			100					105					110		
Asp	Ala	Val	Ile	Leu	Ala	Ile	Gly	Ala	Val	Ala	Lys	Trp	Leu	Ser	Phe
		115					120					125			
Val	Gly	Ser	Gly	Glu	Val	Leu	Gly	Gly	Leu	Trp	Asn	Arg	Gly	Ile	Ser
	130					135					140				
Ala	Cys	Ala	Val	Cys	Asp	Gly	Ala	Ala	Pro	Ile	Phe	Arg	Asn	Lys	Pro
145					150				155					160	
Leu	Ala	Val	Ile	Gly	Gly	Gly	Asp	Ser	Ala	Met	Glu	Glu	Ala	Asn	Phe
			165					170						175	
Leu	Thr	Lys	Tyr	Gly	Ser	Lys	Val	Tyr	Ile	Ile	Asp	Arg	Arg	Asp	Ala
		180						185					190		
Phe	Arg	Ala	Ser	Lys	Ile	Met	Gln	Gln	Arg	Ala	Leu	Ser	Asn	Pro	Lys
		195					200					205			
Ile	Asp	Val	Ile	Trp	Asn	Ser	Ser	Val	Val	Glu	Ala	Tyr	Gly	Asp	Gly
	210				215						220				
Glu	Arg	Asp	Val	Leu	Gly	Gly	Leu	Lys	Val	Lys	Asn	Val	Val	Thr	Gly
225					230					235				240	
Asp	Val	Ser	Asp	Leu	Lys	Val	Ser	Gly	Leu	Phe	Phe	Ala	Ile	Gly	His
			245					250						255	
Glu	Pro	Ala	Thr	Lys	Phe	Leu	Asp	Gly	Gly	Val	Glu	Leu	Asp	Ser	Asp
			260					265					270		
Gly	Tyr	Val	Val	Thr	Lys	Pro	Gly	Thr	Thr	Gln	Thr	Ser	Val	Pro	Gly
		275					280					285			
Val	Phe	Ala	Ala	Gly	Asp	Val	Gln	Asp	Lys	Lys	Tyr	Arg	Gln	Ala	Ile
	290					295					300				
Thr	Ala	Ala	Gly	Thr	Gly	Cys	Met	Ala	Ala	Leu	Asp	Ala	Glu	His	Tyr
305					310					315					320
Leu	Gln	Glu	Ile	Gly	Ser	Gln	Gln	Gly	Lys	Ser	Asp				
				325					330						

<210> 42
 <211> 332
 <212> DNA
 <213> E. coli

<220>
 <221> CDS
 <222> (1)...(332)

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<400> 42
atg agc gat aaa att att cac ctg act gac gac agt ttt gac acg gat 48
Met Ser Asp Lys Ile Ile His Leu Thr Asp Asp Ser Phe Asp Thr Asp
1 5 10 15

gta ctc aaa gcg gac ggg gct atc ctc gtt gat ttc tgg gca gag tgg 96
Val Leu Lys Ala Asp Gly Ala Ile Leu Val Asp Phe Trp Ala Glu Trp
20 25 30

tgc ggg ccg tgt aaa atg atc gct ccg att ctg gat gaa atc gct gac 144
Cys Gly Pro Cys Lys Met Ile Ala Pro Ile Leu Asp Glu Ile Ala Asp
35 40 45

gaa tat cag ggc aaa ttg acc gtt gcc aaa ctg aac att gac cag aac 192
Glu Tyr Gln Gly Lys Leu Thr Val Ala Lys Leu Asn Ile Asp Gln Asn
50 55 60

cca ggt act gcg cct aaa tat ggc atc cgc ggt att ccg act ctg ctg 240
Pro Gly Thr Ala Pro Lys Tyr Gly Ile Arg Gly Ile Pro Thr Leu Leu
65 70 75 80

ctg ttt aaa aac ggc gaa gtg gcg gca acc aaa gta ggc gca ctg tct 288
Leu Phe Lys Asn Gly Glu Val Ala Ala Thr Lys Val Gly Ala Leu Ser
85 90 95

aaa ggt cag ttg aaa gag ttt ctc gac gcc aat ctg gcg taa ta 332
Lys Gly Gln Leu Lys Glu Phe Leu Asp Ala Asn Leu Ala *
100 105

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```

<210> 43
<211> 109
<212> PRT
<213> E. coli

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<400> 43
Met Ser Asp Lys Ile Ile His Leu Thr Asp Asp Ser Phe Asp Thr Asp
1 5 10 15
Val Leu Lys Ala Asp Gly Ala Ile Leu Val Asp Phe Trp Ala Glu Trp
20 25 30
Cys Gly Pro Cys Lys Met Ile Ala Pro Ile Leu Asp Glu Ile Ala Asp
35 40 45
Glu Tyr Gln Gly Lys Leu Thr Val Ala Lys Leu Asn Ile Asp Gln Asn
50 55 60
Pro Gly Thr Ala Pro Lys Tyr Gly Ile Arg Gly Ile Pro Thr Leu Leu
65 70 75 80
Leu Phe Lys Asn Gly Glu Val Ala Ala Thr Lys Val Gly Ala Leu Ser
85 90 95
Lys Gly Gln Leu Lys Glu Phe Leu Asp Ala Asn Leu Ala
100 105

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```

<210> 44
<211> 966
<212> DNA
<213> E. coli

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<220>
<221> CDS
<222> (1)...(966)

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<400> 44
atg ggc acg acc aaa cac agt aaa ctg ctt atc ctg ggt tca ggc ccg 48
Met Gly Thr Thr Lys His Ser Lys Leu Leu Ile Leu Gly Ser Gly Pro
1 5 10 15

```

gcg gga tac acc gct gct gtc tac gcg gcg cgc gcc aac ctg caa cct Ala Gly Tyr Thr Ala Ala Val Tyr Ala Ala Arg Ala Asn Leu Gln Pro	96
gtg ctg att acc ggc atg gaa aaa ggc ggc caa ctg acc acc acc acg Val Leu Ile Thr Gly Met Glu Lys Gly Gly Gln Leu Thr Thr Thr	144
gaa gtg gaa aac tgg cct ggc gat cca aac gat ctg acc ggt ccg tta Glu Val Glu Asn Trp Pro Gly Asp Pro Asn Asp Leu Thr Gly Pro Leu	192
tta atg gag cgc atg cac gaa cat gcc acc aag ttt gaa act gag atc Leu Met Glu Arg Met His Glu His Ala Thr Lys Phe Glu Thr Glu Ile	240
att ttt gat cat atc aac aag gtg gat ctg caa aac cgt ccg ttc cgt Ile Phe Asp His Ile Asn Lys Val Asp Leu Gln Asn Arg Pro Phe Arg	288
ctg aat ggc gat aac ggc gaa tac act tgc gac gcg ctg att att gcc Leu Asn Gly Asp Asn Gly Glu Tyr Thr Cys Asp Ala Leu Ile Ile Ala	336
acc gga gct tct gca cgc tat ctc ggc ctg ccc tct gaa gaa gcc ttt Thr Gly Ala Ser Ala Arg Tyr Leu Gly Leu Pro Ser Glu Glu Ala Phe	384
aaa ggc cgt ggg gtt tct gct tgt gca acc tgc gac ggt ttc ttc tat Lys Gly Arg Gly Val Ser Ala Cys Ala Thr Cys Asp Gly Phe Phe Tyr	432
cgc aac cag aaa gtt gcg gtc atc ggc ggc ggc aat acc gcg gtt gaa Arg Asn Gln Lys Val Ala Val Ile Gly Gly Gly Asn Thr Ala Val Glu	480
gag gcg ttg tat ctg tct aac atc gct tcg gaa gtg cat ctg att cac Glu Ala Leu Tyr Leu Ser Asn Ile Ala Ser Glu Val His Leu Ile His	528
cgc cgt gac ggt ttc cgc gcg gaa aaa atc ctc att aag cgc ctg atg Arg Arg Asp Gly Phe Arg Ala Glu Lys Ile Leu Ile Lys Arg Leu Met	576
gat aaa gtg gag aac ggc aac atc att ctg cac acc aac cgt acg ctg Asp Lys Val Glu Asn Gly Asn Ile Ile Leu His Thr Asn Arg Thr Leu	624
gaa gaa gtg acc ggc gat caa atg ggt gtc act ggc gtt cgt ctg cgc Glu Glu Val Thr Gly Asp Gln Met Gly Val Thr Gly Val Arg Leu Arg	672
gat acg caa aac agc gat aac atc gag tca ctc gac gtt gcc ggt ctg Asp Thr Gln Asn Ser Asp Asn Ile Glu Ser Leu Asp Val Ala Gly Leu	720
ttt gtt gct atc ggt cac agc ccg aat act gcg att ttc gaa ggg cag Phe Val Ala Ile Gly His Ser Pro Asn Thr Ala Ile Phe Glu Gly Gln	768
ctg gaa ctg gaa aac ggc tac atc aaa gta cag tcg ggt att cat ggt Leu Glu Leu Glu Asn Gly Tyr Ile Lys Val Gln Ser Gly Ile His Gly	816
aat gcc acc cag acc agc att cct ggc gtc ttt gcc gca ggc gac gtg Asn Ala Thr Gln Thr Ser Ile Pro Gly Val Phe Ala Ala Gly Asp Val	864

atg	gat	cac	att	tat	cgc	cag	gcc	att	act	tcg	gcc	ggg	aca	ggc	tgc	912
Met	Asp	His	Ile	Tyr	Arg	Gln	Ala	Ile	Thr	Ser	Ala	Gly	Thr	Gly	Cys	
	290					295					300					

atg	gca	gca	ctt	gat	gcg	gaa	cgc	tac	ctc	gat	ggg	tta	gct	gac	gca	960
Met	Ala	Ala	Leu	Asp	Ala	Glu	Arg	Tyr	Leu	Asp	Gly	Leu	Ala	Asp	Ala	
305					310					315					320	

aaa	taa															966
Lys	*															

<210> 45
 <211> 321
 <212> PRT
 <213> E. coli

<400>	45															
Met	Gly	Thr	Thr	Lys	His	Ser	Lys	Leu	Leu	Ile	Leu	Gly	Ser	Gly	Pro	
1				5				10						15		
Ala	Gly	Tyr	Thr	Ala	Ala	Val	Tyr	Ala	Ala	Arg	Ala	Asn	Leu	Gln	Pro	
			20					25					30			
Val	Leu	Ile	Thr	Gly	Met	Glu	Lys	Gly	Gly	Gln	Leu	Thr	Thr	Thr	Thr	
		35					40					45				
Glu	Val	Glu	Asn	Trp	Pro	Gly	Asp	Pro	Asn	Asp	Leu	Thr	Gly	Pro	Leu	
	50					55					60					
Leu	Met	Glu	Arg	Met	His	Glu	His	Ala	Thr	Lys	Phe	Glu	Thr	Glu	Ile	
65					70					75					80	
Ile	Phe	Asp	His	Ile	Asn	Lys	Val	Asp	Leu	Gln	Asn	Arg	Pro	Phe	Arg	
				85				90						95		
Leu	Asn	Gly	Asp	Asn	Gly	Glu	Tyr	Thr	Cys	Asp	Ala	Leu	Ile	Ile	Ala	
			100					105					110			
Thr	Gly	Ala	Ser	Ala	Arg	Tyr	Leu	Gly	Leu	Pro	Ser	Glu	Glu	Ala	Phe	
		115					120					125				
Lys	Gly	Arg	Gly	Val	Ser	Ala	Cys	Ala	Thr	Cys	Asp	Gly	Phe	Phe	Tyr	
	130					135					140					
Arg	Asn	Gln	Lys	Val	Ala	Val	Ile	Gly	Gly	Gly	Asn	Thr	Ala	Val	Glu	
145					150					155					160	
Glu	Ala	Leu	Tyr	Leu	Ser	Asn	Ile	Ala	Ser	Glu	Val	His	Leu	Ile	His	
				165				170						175		
Arg	Arg	Asp	Gly	Phe	Arg	Ala	Glu	Lys	Ile	Leu	Ile	Lys	Arg	Leu	Met	
			180					185					190			
Asp	Lys	Val	Glu	Asn	Gly	Asn	Ile	Ile	Leu	His	Thr	Asn	Arg	Thr	Leu	
		195					200					205				
Glu	Glu	Val	Thr	Gly	Asp	Gln	Met	Gly	Val	Thr	Gly	Val	Arg	Leu	Arg	
	210					215					220					
Asp	Thr	Gln	Asn	Ser	Asp	Asn	Ile	Glu	Ser	Leu	Asp	Val	Ala	Gly	Leu	
225					230					235					240	
Phe	Val	Ala	Ile	Gly	His	Ser	Pro	Asn	Thr	Ala	Ile	Phe	Glu	Gly	Gln	
				245				250						255		
Leu	Glu	Leu	Glu	Asn	Gly	Tyr	Ile	Lys	Val	Gln	Ser	Gly	Ile	His	Gly	
			260					265					270			
Asn	Ala	Thr	Gln	Thr	Ser	Ile	Pro	Gly	Val	Phe	Ala	Ala	Gly	Asp	Val	
		275					280					285				
Met	Asp	His	Ile	Tyr	Arg	Gln	Ala	Ile	Thr	Ser	Ala	Gly	Thr	Gly	Cys	
	290					295					300					
Met	Ala	Ala	Leu	Asp	Ala	Glu	Arg	Tyr	Leu	Asp	Gly	Leu	Ala	Asp	Ala	
305					310					315					320	
Lys																

<210> 46
 <211> 318
 <212> DNA

<213> Homo Sapien

<220>

<221> CDS

<222> (1)...(318)

<400> 46

atg	gtg	aag	cag	atc	gag	agc	aag	act	gct	ttt	cag	gaa	gcc	ttg	gac	48
Met	Val	Lys	Gln	Ile	Glu	Ser	Lys	Thr	Ala	Phe	Gln	Glu	Ala	Leu	Asp	
1				5					10					15		
gct	gca	ggt	gat	aaa	ctt	gta	gta	gtt	gac	ttc	tca	gcc	acg	tggt	tgt	96
Ala	Ala	Gly	Asp	Lys	Leu	Val	Val	Val	Asp	Phe	Ser	Ala	Thr	Trp	Cys	
			20					25					30			
ggg	cct	tgc	aaa	atg	atc	aag	cct	ttc	ttt	cat	tcc	ctc	tct	gaa	aag	144
Gly	Pro	Cys	Lys	Met	Ile	Lys	Pro	Phe	Phe	His	Ser	Leu	Ser	Glu	Lys	
		35					40					45				
tat	tcc	aac	gtg	ata	ttc	ctt	gaa	gta	gat	gtg	gat	gac	tgt	cag	gat	192
Tyr	Ser	Asn	Val	Ile	Phe	Leu	Glu	Val	Asp	Val	Asp	Asp	Cys	Gln	Asp	
	50					55					60					
gtt	gct	tca	gag	tgt	gaa	gtc	aaa	tgc	atg	cca	aca	ttc	cag	ttt	ttt	240
Val	Ala	Ser	Glu	Cys	Glu	Val	Lys	Cys	Met	Pro	Thr	Phe	Gln	Phe	Phe	
65					70					75					80	
aag	aag	gga	caa	aag	gtg	ggt	gaa	ttt	tct	gga	gcc	aat	aag	gaa	aag	288
Lys	Lys	Gly	Gln	Lys	Val	Gly	Glu	Phe	Ser	Gly	Ala	Asn	Lys	Glu	Lys	
				85					90					95		
ctt	gaa	gcc	acc	att	aat	gaa	tta	gtc	taa							318
Leu	Glu	Ala	Thr	Ile	Asn	Glu	Leu	Val	*							
			100					105								

<210> 47

<211> 105

<212> PRT

<213> Homo Sapien

<400> 47

Met	Val	Lys	Gln	Ile	Glu	Ser	Lys	Thr	Ala	Phe	Gln	Glu	Ala	Leu	Asp	
1				5					10					15		
Ala	Ala	Gly	Asp	Lys	Leu	Val	Val	Val	Asp	Phe	Ser	Ala	Thr	Trp	Cys	
			20					25					30			
Gly	Pro	Cys	Lys	Met	Ile	Lys	Pro	Phe	Phe	His	Ser	Leu	Ser	Glu	Lys	
		35					40					45				
Tyr	Ser	Asn	Val	Ile	Phe	Leu	Glu	Val	Asp	Val	Asp	Asp	Cys	Gln	Asp	
	50					55					60					
Val	Ala	Ser	Glu	Cys	Glu	Val	Lys	Cys	Met	Pro	Thr	Phe	Gln	Phe	Phe	
65					70					75					80	
Lys	Lys	Gly	Gln	Lys	Val	Gly	Glu	Phe	Ser	Gly	Ala	Asn	Lys	Glu	Lys	
			85						90					95		
Leu	Glu	Ala	Thr	Ile	Asn	Glu	Leu	Val								
			100					105								

<210> 48

<211> 1494

<212> DNA

<213> Homo sapien

<220>

<221> CDS

<222> (1)...(1494)

<400> 48

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Met Asn Gly Pro Glu Asp Leu Pro Lys Ser Tyr Asp Tyr Asp Leu Ile	
1 5 10 15	
atc att gga ggt ggc tca gga ggt ctg gca gct gct aag gag cca gcc	96
Ile Ile Gly Gly Gly Ser Gly Gly Leu Ala Ala Ala Lys Glu Pro Ala	
20 25 30	
caa tat ggc aag aag gtg atg gtc ctg gac ttt ggc act ccc acc cct	144
Gln Tyr Gly Lys Lys Val Met Val Leu Asp Phe Gly Thr Pro Thr Pro	
35 40 45	
ctt gga act aga tgg ggt ctt gga gga aca tgt gtg aat gtg ggt tgc	192
Leu Gly Thr Arg Trp Gly Leu Gly Gly Thr Cys Val Asn Val Gly Cys	
50 55 60	
ata cct aaa aaa ctg atg cat caa gca gct ttg tta gga caa gcc ctg	240
Ile Pro Lys Lys Leu Met His Gln Ala Ala Leu Leu Gly Gln Ala Leu	
65 70 75 80	
caa gac tct cga aat tat gga tgg aaa gtc gag gag aca gtt aag cat	288
Gln Asp Ser Arg Asn Tyr Gly Trp Lys Val Glu Glu Thr Val Lys His	
85 90 95	
gat tgg gac aga atg ata gaa gct gta cag aat cac att ggc tct ttg	336
Asp Trp Asp Arg Met Ile Glu Ala Val Gln Asn His Ile Gly Ser Leu	
100 105 110	
aat tgg ggc tac cga gta gct ctg cgg gag aaa aaa gtc gtc tat gag	384
Asn Trp Gly Tyr Arg Val Ala Leu Arg Glu Lys Lys Val Val Tyr Glu	
115 120 125	
aat gct tat ggg caa ttt att ggt cct cac agg att aag gca aca aat	432
Asn Ala Tyr Gly Gln Phe Ile Gly Pro His Arg Ile Lys Ala Thr Asn	
130 135 140	
aat aaa ggc aaa gaa aaa att tat tca gca gag aga ttt ctc att gcc	480
Asn Lys Gly Lys Glu Lys Ile Tyr Ser Ala Glu Arg Phe Leu Ile Ala	
145 150 155 160	
act ggt gaa aga cca cgt tac ttg ggc atc cct ggt gac aaa gaa tac	528
Thr Gly Glu Arg Pro Arg Tyr Leu Gly Ile Pro Gly Asp Lys Glu Tyr	
165 170 175	
tgc atc agc agt gat gat ctt ttc tcc ttg cct tac tgc ccg ggt aag	576
Cys Ile Ser Ser Asp Asp Leu Phe Ser Leu Pro Tyr Cys Pro Gly Lys	
180 185 190	
aca ctg gtt gtt gga gca tcc tat gtc gct ttg gag tgc gct gga ttt	624
Thr Leu Val Val Gly Ala Ser Tyr Val Ala Leu Glu Cys Ala Gly Phe	
195 200 205	
ctt gct ggt att ggt tta gac gtc act gtt atg gtt agg tcc att ctt	672
Leu Ala Gly Ile Gly Leu Asp Val Thr Val Met Val Arg Ser Ile Leu	
210 215 220	
ctt aga gga ttt gac cag gac atg gcc aac aaa att ggt gaa cac atg	720
Leu Arg Gly Phe Asp Gln Asp Met Ala Asn Lys Ile Gly Glu His Met	
225 230 235 240	
gaa gaa cat ggc atc aag ttt ata aga cag ttc gta cca att aaa gtt	768
Glu Glu His Gly Ile Lys Phe Ile Arg Gln Phe Val Pro Ile Lys Val	
245 250 255	
gaa caa att gaa gca ggg aca cca ggc cga ctc aga gta gta gct cag	816
Glu Gln Ile Glu Ala Gly Thr Pro Gly Arg Leu Arg Val Val Ala Gln	

260								265				270				
tcc	acc	aat	agt	gag	gaa	atc	att	gaa	gga	gaa	tat	aat	acg	gtg	atg	864
Ser	Thr	Asn	Ser	Glu	Glu	Ile	Ile	Glu	Gly	Glu	Tyr	Asn	Thr	Val	Met	
		275					280					285				
ctg	gca	ata	gga	aga	gat	gct	tgc	aca	aga	aaa	att	ggc	tta	gaa	acc	912
Leu	Ala	Ile	Gly	Arg	Asp	Ala	Cys	Thr	Arg	Lys	Ile	Gly	Leu	Glu	Thr	
	290					295					300					
gta	ggg	gtg	aag	ata	aat	gaa	aag	act	gga	aaa	ata	cct	gtc	aca	gat	960
Val	Gly	Val	Lys	Ile	Asn	Glu	Lys	Thr	Gly	Lys	Ile	Pro	Val	Thr	Asp	
	305				310					315					320	
gaa	gaa	cag	acc	aat	gtg	cct	tac	atc	tat	gcc	att	ggc	gat	ata	ttg	1008
Glu	Glu	Gln	Thr	Asn	Val	Pro	Tyr	Ile	Tyr	Ala	Ile	Gly	Asp	Ile	Leu	
				325					330					335		
gag	gat	aag	gtg	gag	ctc	acc	cca	gtt	gca	atc	cag	gca	gga	aga	ttg	1056
Glu	Asp	Lys	Val	Glu	Leu	Thr	Pro	Val	Ala	Ile	Gln	Ala	Gly	Arg	Leu	
			340					345					350			
ctg	gct	cag	agg	ctc	tat	gca	ggc	tcc	act	gtc	aag	tgt	gac	tat	gaa	1104
Leu	Ala	Gln	Arg	Leu	Tyr	Ala	Gly	Ser	Thr	Val	Lys	Cys	Asp	Tyr	Glu	
		355					360					365				
aat	gtt	cca	acc	act	gta	ttt	act	cct	ttg	gaa	tat	ggc	gct	tgt	ggc	1152
Asn	Val	Pro	Thr	Thr	Val	Phe	Thr	Pro	Leu	Glu	Tyr	Gly	Ala	Cys	Gly	
	370					375					380					
ctt	tct	gag	gag	aaa	gct	gtg	gag	aag	ttt	ggg	gaa	gaa	aat	att	gag	1200
Leu	Ser	Glu	Glu	Lys	Ala	Val	Glu	Lys	Phe	Gly	Glu	Glu	Asn	Ile	Glu	
	385				390					395					400	
gtt	tac	cat	agt	tac	ttt	tgg	cca	ttg	gaa	tgg	acg	att	ccg	tca	aga	1248
Val	Tyr	His	Ser	Tyr	Phe	Trp	Pro	Leu	Glu	Trp	Thr	Ile	Pro	Ser	Arg	
				405					410					415		
gat	aac	aac	aaa	tgt	tat	gca	aaa	ata	atc	tgt	aat	act	aaa	gac	aat	1296
Asp	Asn	Asn	Lys	Cys	Tyr	Ala	Lys	Ile	Ile	Cys	Asn	Thr	Lys	Asp	Asn	
			420					425					430			
gaa	cgt	gtt	gtg	ggc	ttt	cac	gta	ctg	ggc	cca	aat	gct	gga	gaa	gtt	1344
Glu	Arg	Val	Val	Gly	Phe	His	Val	Leu	Gly	Pro	Asn	Ala	Gly	Glu	Val	
		435					440					445				
aca	caa	ggc	ttt	gca	gct	gcg	ctc	aaa	tgt	gga	ctg	acc	aaa	aag	cag	1392
Thr	Gln	Gly	Phe	Ala	Ala	Ala	Leu	Lys	Cys	Gly	Leu	Thr	Lys	Lys	Gln	
	450					455					460					
ctg	gac	agc	aca	att	gga	atc	cac	cct	gtc	tgt	gca	gag	gta	ttc	aca	1440
Leu	Asp	Ser	Thr	Ile	Gly	Ile	His	Pro	Val	Cys	Ala	Glu	Val	Phe	Thr	
	465				470				475						480	
aca	ttg	tct	gtg	acc	aag	cgc	tct	ggg	gca	agc	atc	ctc	cag	gct	ggc	1488
Thr	Leu	Ser	Val	Thr	Lys	Arg	Ser	Gly	Ala	Ser	Ile	Leu	Gln	Ala	Gly	
				485				490						495		
tgc	tga															1494
Cys	*															

<210> 49
 <211> 497
 <212> PRT
 <213> Homo sapien

<400> 49

Met	Asn	Gly	Pro	Glu	Asp	Leu	Pro	Lys	Ser	Tyr	Asp	Tyr	Asp	Leu	Ile
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Ile	Ile	Gly	Gly	Gly	Ser	Gly	Gly	Leu	Ala	Ala	Ala	Lys	Glu	Pro	Ala
			20					25					30		
Gln	Tyr	Gly	Lys	Lys	Val	Met	Val	Leu	Asp	Phe	Gly	Thr	Pro	Thr	Pro
		35					40					45			
Leu	Gly	Thr	Arg	Trp	Gly	Leu	Gly	Gly	Thr	Cys	Val	Asn	Val	Gly	Cys
50					55						60				
Ile	Pro	Lys	Lys	Leu	Met	His	Gln	Ala	Ala	Leu	Leu	Gly	Gln	Ala	Leu
65					70					75					80
Gln	Asp	Ser	Arg	Asn	Tyr	Gly	Trp	Lys	Val	Glu	Glu	Thr	Val	Lys	His
				85					90					95	
Asp	Trp	Asp	Arg	Met	Ile	Glu	Ala	Val	Gln	Asn	His	Ile	Gly	Ser	Leu
			100					105					110		
Asn	Trp	Gly	Tyr	Arg	Val	Ala	Leu	Arg	Glu	Lys	Lys	Val	Val	Tyr	Glu
		115					120					125			
Asn	Ala	Tyr	Gly	Gln	Phe	Ile	Gly	Pro	His	Arg	Ile	Lys	Ala	Thr	Asn
130					135						140				
Asn	Lys	Gly	Lys	Glu	Lys	Ile	Tyr	Ser	Ala	Glu	Arg	Phe	Leu	Ile	Ala
145					150					155					160
Thr	Gly	Glu	Arg	Pro	Arg	Tyr	Leu	Gly	Ile	Pro	Gly	Asp	Lys	Glu	Tyr
				165				170						175	
Cys	Ile	Ser	Ser	Asp	Asp	Leu	Phe	Ser	Leu	Pro	Tyr	Cys	Pro	Gly	Lys
			180					185					190		
Thr	Leu	Val	Val	Gly	Ala	Ser	Tyr	Val	Ala	Leu	Glu	Cys	Ala	Gly	Phe
		195					200					205			
Leu	Ala	Gly	Ile	Gly	Leu	Asp	Val	Thr	Val	Met	Val	Arg	Ser	Ile	Leu
210					215						220				
Leu	Arg	Gly	Phe	Asp	Gln	Asp	Met	Ala	Asn	Lys	Ile	Gly	Glu	His	Met
225					230					235					240
Glu	Glu	His	Gly	Ile	Lys	Phe	Ile	Arg	Gln	Phe	Val	Pro	Ile	Lys	Val
				245					250					255	
Glu	Gln	Ile	Glu	Ala	Gly	Thr	Pro	Gly	Arg	Leu	Arg	Val	Val	Ala	Gln
			260					265					270		
Ser	Thr	Asn	Ser	Glu	Glu	Ile	Ile	Glu	Gly	Glu	Tyr	Asn	Thr	Val	Met
		275					280					285			
Leu	Ala	Ile	Gly	Arg	Asp	Ala	Cys	Thr	Arg	Lys	Ile	Gly	Leu	Glu	Thr
290					295						300				
Val	Gly	Val	Lys	Ile	Asn	Glu	Lys	Thr	Gly	Lys	Ile	Pro	Val	Thr	Asp
305					310					315					320
Glu	Glu	Gln	Thr	Asn	Val	Pro	Tyr	Ile	Tyr	Ala	Ile	Gly	Asp	Ile	Leu
				325					330					335	
Glu	Asp	Lys	Val	Glu	Leu	Thr	Pro	Val	Ala	Ile	Gln	Ala	Gly	Arg	Leu
			340					345					350		
Leu	Ala	Gln	Arg	Leu	Tyr	Ala	Gly	Ser	Thr	Val	Lys	Cys	Asp	Tyr	Glu
		355					360					365			
Asn	Val	Pro	Thr	Thr	Val	Phe	Thr	Pro	Leu	Glu	Tyr	Gly	Ala	Cys	Gly
370						375					380				
Leu	Ser	Glu	Glu	Lys	Ala	Val	Glu	Lys	Phe	Gly	Glu	Glu	Asn	Ile	Glu
385					390					395					400
Val	Tyr	His	Ser	Tyr	Phe	Trp	Pro	Leu	Glu	Trp	Thr	Ile	Pro	Ser	Arg
				405					410					415	
Asp	Asn	Asn	Lys	Cys	Tyr	Ala	Lys	Ile	Ile	Cys	Asn	Thr	Lys	Asp	Asn
			420					425					430		
Glu	Arg	Val	Val	Gly	Phe	His	Val	Leu	Gly	Pro	Asn	Ala	Gly	Glu	Val
		435					440					445			
Thr	Gln	Gly	Phe	Ala	Ala	Ala	Leu	Lys	Cys	Gly	Leu	Thr	Lys	Lys	Gln
450						455					460				
Leu	Asp	Ser	Thr	Ile	Gly	Ile	His	Pro	Val	Cys	Ala	Glu	Val	Phe	Thr
465					470					475					480
Thr	Leu	Ser	Val	Thr	Lys	Arg	Ser	Gly	Ala	Ser	Ile	Leu	Gln	Ala	Gly
				485					490					495	

Cys

<210> 50
 <211> 1377
 <212> DNA
 <213> Mycobacterium leprae

<220>
 <221> CDS
 <222> (1)...(1377)

<400> 50
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 Met Asn Thr Thr Pro Ser Ala His Glu Thr Ile His Glu Val Ile Val
 1 5 10 15
 att ggc tcc ggt cca gca ggc tac act gct gcc ctg tac gcc gct cgt 96
 Ile Gly Ser Gly Pro Ala Gly Tyr Thr Ala Ala Leu Tyr Ala Ala Arg
 20 25 30
 gca cag cta aca ccg ctg gta ttt gag ggt acc tca ttc ggc ggc gcg 144
 Ala Gln Leu Thr Pro Leu Val Phe Glu Gly Thr Ser Phe Gly Gly Ala
 35 40 45
 ctg atg acc acc acc gag gtg gaa aac tac cca ggt ttt cgc aac ggc 192
 Leu Met Thr Thr Thr Glu Val Glu Asn Tyr Pro Gly Phe Arg Asn Gly
 50 55 60
 ata acc ggc ccg gag ttg atg gac gat atg cgt gaa cag gca ctg cga 240
 Ile Thr Gly Pro Glu Leu Met Asp Asp Met Arg Glu Gln Ala Leu Arg
 65 70 75 80
 ttc ggc gcg gaa ctg cgg acc gaa gac gtc gag tcg gta tca ttg cgt 288
 Phe Gly Ala Glu Leu Arg Thr Glu Asp Val Glu Ser Val Ser Leu Arg
 85 90 95
 ggc ccg atc aaa tcg gtc gtc acc gct gaa gga cag act tat cag gcc 336
 Gly Pro Ile Lys Ser Val Val Thr Ala Glu Gly Gln Thr Tyr Gln Ala
 100 105 110
 cga gcc gtc atc ctc gcc atg ggt acc tcc gtg cgt tat cta cag atc 384
 Arg Ala Val Ile Leu Ala Met Gly Thr Ser Val Arg Tyr Leu Gln Ile
 115 120 125
 ccc ggc gag caa gaa ttg cta gga cgt ggc gtg agt gca tgc gcg acc 432
 Pro Gly Glu Gln Glu Leu Leu Gly Arg Gly Val Ser Ala Cys Ala Thr
 130 135 140
 tgc gac ggg tcc ttt ttc cgc ggc caa gac att gcc gtc att ggc ggt 480
 Cys Asp Gly Ser Phe Phe Arg Gly Gln Asp Ile Ala Val Ile Gly Gly
 145 150 155 160
 gga gac tca gcg atg gag gaa gcc ctc ttt ttg acc cgg ttc gcc gcg 528
 Gly Asp Ser Ala Met Glu Glu Ala Leu Phe Leu Thr Arg Phe Ala Arg
 165 170 175
 agc gtc acg ctc gtg cac cgc cgc gac gaa ttc cga gct tct aag atc 576
 Ser Val Thr Leu Val His Arg Arg Asp Glu Phe Arg Ala Ser Lys Ile
 180 185 190
 atg ctc ggt cgc gcc cgt aac aat gac aag atc aaa ttc atc acc aac 624
 Met Leu Gly Arg Ala Arg Asn Asn Asp Lys Ile Lys Phe Ile Thr Asn
 195 200 205
 cac acc gtg gtc gcg gtg aac ggg tat aca aca gtg acc gga ttg cgg 672
 His Thr Val Val Ala Val Asn Gly Tyr Thr Thr Val Thr Gly Leu Arg
 210 215 220
 ttg cgt aac acc aca acg gga gag gaa acc acg cta gta gtg acc ggg 720

Leu 225	Arg	Asn	Thr	Thr	Thr 230	Gly	Glu	Glu	Thr	Thr 235	Leu	Val	Val	Thr	Gly 240	
gtt Val	ttt Phe	gtt Val	gca Ala	att Ile 245	ggc Gly	cat His	gaa Glu	cca Pro	cgt Arg 250	tcc Ser	agc Ser	ctg Leu	gtg Val	agc Ser 255	gat Asp	768
gtc Val	gtc Val	gac Asp	ata Ile 260	gac Asp	ccg Pro	gat Asp	ggc Gly	tac Tyr 265	gtc Val	ctg Leu	gtg Val	aaa Lys	gga Gly 270	cgt Arg	acg Thr	816
acg Thr	agt Ser	aca Thr 275	tcg Ser	atg Met	gac Asp	ggc Gly	gtt Val 280	ttt Phe	gcg Ala	gcc Ala	ggc Gly	gac Asp 285	ctg Leu	gta Val	gat Asp	864
cgc Arg	acc Thr 290	tac Tyr	cgg Arg	cag Gln	gcg Ala	atc Ile 295	act Thr	gcc Ala	gca Ala	ggg Gly	agt Ser 300	ggc Gly	tgt Cys	gcc Ala	gcc Ala	912
gcc Ala 305	atc Ile	gac Asp	gcc Ala	gaa Glu	cgt Arg 310	tgg Trp	ttg Leu	gcg Ala	gag Glu	cat His 315	gcc Ala	ggg Gly	tca Ser	aaa Lys	gct Ala 320	960
aac Asn	gaa Glu	aca Thr	aca Thr	gag Glu 325	gaa Glu	act Thr	gga Gly	gac Asp	gtt Val 330	gac Asp	agt Ser	acc Thr	gac Asp	aca Thr 335	acc Thr	1008
gat Asp	tgg Trp	agc Ser	act Thr 340	gcg Ala	atg Met	act Thr	gac Asp	gcc Ala 345	aag Lys	aac Asn	gcc Ala	ggg Gly	gtc Val 350	aca Thr	ata Ile	1056
gaa Glu	gtg Val	acc Thr 355	gat Asp	gct Ala	tcc Ser	ttt Phe	ttc Phe 360	gca Ala	gac Asp	gtc Val	tta Leu	tcc Ser 365	agt Ser	aat Asn	aag Lys	1104
cct Pro 370	gtg Val	tta Leu	gtt Val	gat Asp	ttt Phe	tgg Trp 375	gca Ala	aca Thr	tgg Trp	tgt Cys	gga Gly 380	ccc Pro	tgc Cys	aag Lys	atg Met	1152
gta Val 385	gcg Ala	ccg Pro	gta Val	ctc Leu	gaa Glu 390	gag Glu	atc Ile	gcg Ala	tcc Ser	gaa Glu 395	caa Gln	cga Arg	aac Asn	cag Gln	ctc Leu 400	1200
act Thr	gtc Val	gcc Ala	aag Lys	tta Leu 405	gat Asp	gta Val	gac Asp	acc Thr	aac Asn 410	ccg Pro	gaa Glu	atg Met	gca Ala	cgc Arg 415	gag Glu	1248
ttc Phe	cag Gln	gtc Val	gtg Val 420	tcg Ser	ata Ile	ccc Pro	aca Thr	atg Met 425	att Ile	ctg Leu	ttc Phe	cag Gln	ggg Gly 430	ggc Gly	caa Gln	1296
cca Pro	gta Val	aaa Lys 435	cgc Arg	atc Ile	gtt Val	ggc Gly	gct Ala 440	aag Lys	ggc Gly	aaa Lys	gca Ala	gcg Ala 445	tta Leu	cta Leu	cgt Arg	1344
gac Asp 450	ctt Leu	tcc Ser	gac Asp	gtg Val	gta Val	cct Pro 455	aac Asn	ctc Leu	aat Asn	tag *						1377

<210> 51
 <211> 458
 <212> PRT
 <213> Mycobacterium leprae

<400> 51
 Met Asn Thr Thr Pro Ser Ala His Glu Thr Ile His Glu Val Ile Val

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			20					25					30			
Ala	Gln	Leu	Thr	Pro	Leu	Val	Phe	Glu	Gly	Thr	Ser	Phe	Gly	Gly	Ala	
		35					40					45				
Leu	Met	Thr	Thr	Thr	Glu	Val	Glu	Asn	Tyr	Pro	Gly	Phe	Arg	Asn	Gly	
	50					55					60					
Ile	Thr	Gly	Pro	Glu	Leu	Met	Asp	Asp	Met	Arg	Glu	Gln	Ala	Leu	Arg	
65				70						75					80	
Phe	Gly	Ala	Glu	Leu	Arg	Thr	Glu	Asp	Val	Glu	Ser	Val	Ser	Leu	Arg	
			85					90						95		
Gly	Pro	Ile	Lys	Ser	Val	Val	Thr	Ala	Glu	Gly	Gln	Thr	Tyr	Gln	Ala	
		100						105					110			
Arg	Ala	Val	Ile	Leu	Ala	Met	Gly	Thr	Ser	Val	Arg	Tyr	Leu	Gln	Ile	
		115					120					125				
Pro	Gly	Glu	Gln	Glu	Leu	Leu	Gly	Arg	Gly	Val	Ser	Ala	Cys	Ala	Thr	
	130					135					140					
Cys	Asp	Gly	Ser	Phe	Phe	Arg	Gly	Gln	Asp	Ile	Ala	Val	Ile	Gly	Gly	
145				150						155					160	
Gly	Asp	Ser	Ala	Met	Glu	Glu	Ala	Leu	Phe	Leu	Thr	Arg	Phe	Ala	Arg	
			165					170						175		
Ser	Val	Thr	Leu	Val	His	Arg	Arg	Asp	Glu	Phe	Arg	Ala	Ser	Lys	Ile	
			180					185					190			
Met	Leu	Gly	Arg	Ala	Arg	Asn	Asn	Asp	Lys	Ile	Lys	Phe	Ile	Thr	Asn	
		195					200					205				
His	Thr	Val	Val	Ala	Val	Asn	Gly	Tyr	Thr	Thr	Val	Thr	Gly	Leu	Arg	
	210					215					220					
Leu	Arg	Asn	Thr	Thr	Thr	Gly	Glu	Glu	Thr	Thr	Leu	Val	Val	Thr	Gly	
225				230						235					240	
Val	Phe	Val	Ala	Ile	Gly	His	Glu	Pro	Arg	Ser	Ser	Leu	Val	Ser	Asp	
			245					250						255		
Val	Val	Asp	Ile	Asp	Pro	Asp	Gly	Tyr	Val	Leu	Val	Lys	Gly	Arg	Thr	
		260					265						270			
Thr	Ser	Thr	Ser	Met	Asp	Gly	Val	Phe	Ala	Ala	Gly	Asp	Leu	Val	Asp	
		275				280						285				
Arg	Thr	Tyr	Arg	Gln	Ala	Ile	Thr	Ala	Ala	Gly	Ser	Gly	Cys	Ala	Ala	
	290					295					300					
Ala	Ile	Asp	Ala	Glu	Arg	Trp	Leu	Ala	Glu	His	Ala	Gly	Ser	Lys	Ala	
305				310						315					320	
Asn	Glu	Thr	Thr	Glu	Glu	Thr	Gly	Asp	Val	Asp	Ser	Thr	Asp	Thr	Thr	
			325					330						335		
Asp	Trp	Ser	Thr	Ala	Met	Thr	Asp	Ala	Lys	Asn	Ala	Gly	Val	Thr	Ile	
		340					345						350			
Glu	Val	Thr	Asp	Ala	Ser	Phe	Phe	Ala	Asp	Val	Leu	Ser	Ser	Asn	Lys	
		355				360						365				
Pro	Val	Leu	Val	Asp	Phe	Trp	Ala	Thr	Trp	Cys	Gly	Pro	Cys	Lys	Met	
	370					375					380					
Val	Ala	Pro	Val	Leu	Glu	Glu	Ile	Ala	Ser	Glu	Gln	Arg	Asn	Gln	Leu	
385				390						395					400	
Thr	Val	Ala	Lys	Leu	Asp	Val	Asp	Thr	Asn	Pro	Glu	Met	Ala	Arg	Glu	
			405					410						415		
Phe	Gln	Val	Val	Ser	Ile	Pro	Thr	Met	Ile	Leu	Phe	Gln	Gly	Gly	Gln	
		420					425						430			
Pro	Val	Lys	Arg	Ile	Val	Gly	Ala	Lys	Gly	Lys	Ala	Ala	Leu	Leu	Arg	
	435					440						445				
Asp	Leu	Ser	Asp	Val	Val	Pro	Asn	Leu	Asn							
	450					455										

<210> 52
 <211> 178
 <212> PRT
 <213> Arabidopsis thaliana

<400> 52
 Met Pro Leu Ser Leu Arg Leu Ser Pro Ser Pro Thr Ala Leu Ser Pro
 1 5 10 15

Thr	Thr	Gly	Gly	Phe	Gly	Pro	Ser	Arg	Lys	Gln	Cys	Arg	Ile	Pro	Tyr	
			20					25					30			
Ser	Gly	Val	Pro	Thr	Thr	Lys	Ile	Gly	Phe	Cys	Ser	Leu	Asp	Ser	Arg	
		35					40					45				
Lys	Arg	Gly	Asp	Ser	Ser	Val	Val	Arg	Cys	Ser	Leu	Glu	Thr	Val	Asn	
	50					55					60					
Val	Ser	Val	Gly	Gln	Val	Thr	Glu	Val	Asp	Lys	Asp	Thr	Phe	Trp	Pro	
65					70					75					80	
Ile	Val	Lys	Ala	Ala	Gly	Glu	Lys	Leu	Val	Val	Leu	Asp	Met	Tyr	Thr	
			85						90					95		
Gln	Trp	Cys	Gly	Pro	Cys	Lys	Val	Ile	Ala	Pro	Lys	Tyr	Lys	Ala	Leu	
			100					105					110			
Ser	Glu	Lys	Tyr	Asp	Asp	Val	Val	Phe	Leu	Lys	Leu	Asp	Cys	Asn	Pro	
		115				120						125				
Asp	Asn	Arg	Pro	Leu	Pro	Lys	Glu	Leu	Gly	Ile	Arg	Val	Val	Pro	Thr	
	130					135						140				
Phe	Lys	Ile	Leu	Lys	Asp	Asn	Lys	Val	Val	Lys	Glu	Val	Thr	Gly	Ala	
145					150					155					160	
Lys	Tyr	Asp	Asp	Leu	Val	Ala	Ala	Ile	Glu	Thr	Ala	Arg	Ser	Ala	Ala	
				165					170					175		
Ser	Gly															

<210> 53
 <211> 185
 <212> PRT
 <213> Arabidopsis thaliana

Met	Pro	Leu	Ser	Leu	Arg	Leu	Ala	Pro	Ser	Pro	Thr	Ser	Phe	Arg	Tyr	
1				5					10					15		
Ser	Pro	Ile	Thr	Ser	Thr	Gly	Ala	Gly	Gly	Phe	Ser	Pro	Val	Lys	Gln	
			20					25					30			
His	Cys	Arg	Ile	Pro	Asn	Ser	Gly	Val	Ala	Thr	Lys	Ile	Gly	Phe	Cys	
		35				40						45				
Ser	Gly	Gly	Gly	Gly	Val	Leu	Asp	Ser	Gly	Arg	Arg	Ile	Gly	Ser	Cys	
	50					55					60					
Val	Val	Arg	Cys	Ser	Leu	Glu	Thr	Val	Asn	Val	Thr	Val	Gly	Gln	Val	
65					70					75					80	
Thr	Glu	Val	Asp	Lys	Asp	Thr	Phe	Trp	Pro	Ile	Val	Lys	Ala	Ala	Gly	
			85						90					95		
Asp	Lys	Ile	Val	Val	Leu	Asp	Met	Tyr	Thr	Gln	Trp	Cys	Gly	Pro	Cys	
			100					105					110			
Lys	Val	Ile	Ala	Pro	Lys	Tyr	Lys	Glu	Leu	Ser	Glu	Lys	Tyr	Gln	Asp	
		115				120						125				
Met	Val	Phe	Leu	Lys	Leu	Asp	Cys	Asn	Gln	Asp	Asn	Lys	Pro	Leu	Ala	
	130					135						140				
Lys	Glu	Leu	Gly	Ile	Arg	Val	Val	Pro	Thr	Phe	Lys	Ile	Leu	Lys	Asp	
145					150					155					160	
Asn	Lys	Val	Val	Lys	Glu	Val	Thr	Gly	Ala	Lys	Tyr	Glu	Asp	Leu	Leu	
				165					170					175		
Ala	Ala	Ile	Glu	Ala	Ala	Arg	Ser	Gly								
			180					185								

<210> 54
 <211> 182
 <212> PRT
 <213> Brassica napus

Met	Pro	Leu	Ser	Leu	Arg	Leu	Ala	Pro	Ser	Pro	Thr	Ala	Leu	Ser	Pro	
1				5					10					15		
Thr	Thr	Gly	Gly	Phe	Ser	Pro	Ala	Lys	Lys	Gln	Cys	Arg	Ile	Pro	Ser	
			20					25					30			
Tyr	Ser	Gly	Val	Ala	Thr	Thr	Thr	Arg	Arg	Ile	Gly	Leu	Cys	Ser	Leu	

		35				40			45								
Asp	Tyr	Val	Lys	Arg	Gly	Asp	Ser	Ser	Val	Val	Arg	Cys	Ser	Leu	Gln		
	50					55					60						
Thr	Val	Asn	Val	Ser	Val	Gly	Gln	Val	Thr	Glu	Val	Asp	Lys	Asp	Thr		
65					70					75					80		
Phe	Trp	Pro	Ile	Val	Lys	Ala	Ala	Gly	Glu	Lys	Ile	Val	Val	Leu	Asp		
			85						90					95			
Met	Tyr	Thr	Gln	Trp	Cys	Gly	Pro	Cys	Lys	Val	Ile	Ala	Pro	Lys	Tyr		
			100					105					110				
Lys	Ala	Leu	Ser	Glu	Lys	Tyr	Glu	Asp	Val	Val	Phe	Leu	Lys	Leu	Asp		
		115					120					125					
Cys	Asn	Pro	Glu	Asn	Arg	Pro	Leu	Ala	Lys	Glu	Leu	Gly	Ile	Arg	Val		
	130					135					140						
Val	Pro	Thr	Phe	Lys	Ile	Leu	Lys	Asp	Asn	Gln	Val	Val	Lys	Glu	Val		
145					150					155					160		
Thr	Gly	Ala	Lys	Tyr	Asp	Asp	Leu	Val	Ala	Ala	Ile	Glu	Thr	Ala	Arg		
			165						170					175			
Ser	Ala	Ser	Ser	Ser	Gly												
			180														

<210> 55
 <211> 191
 <212> PRT
 <213> Mesembryanthemum crystallinum

<400> 55																	
Met	Ala	Met	Gln	Leu	Ser	Leu	Ser	His	Gln	Ser	Trp	Ala	Lys	Ser	Leu		
1				5					10					15			
Ala	Ser	Pro	Ile	Thr	Ser	Phe	Asp	Pro	Ala	Arg	Ser	Pro	Pro	Lys	Arg		
			20				25						30				
Val	Glu	Leu	Gly	Pro	Asn	Cys	Leu	Asn	Gly	Gly	Ala	Thr	Ala	Gly	Lys		
		35					40					45					
Leu	Met	Arg	Glu	Lys	Val	Gly	Glu	Arg	Met	Arg	Met	Ser	Gly	Arg	Ser		
	50					55					60						
Cys	Cys	Val	Lys	Ala	Ser	Leu	Glu	Thr	Ala	Val	Gly	Ala	Glu	Ser	Glu		
65					70					75					80		
Thr	Leu	Val	Gly	Lys	Val	Thr	Glu	Val	Asp	Lys	Asp	Thr	Phe	Trp	Pro		
			85						90					95			
Ile	Ala	Asn	Gly	Ala	Gly	Asp	Lys	Pro	Val	Val	Leu	Asp	Met	Tyr	Thr		
			100				105						110				
Gln	Trp	Cys	Gly	Pro	Cys	Lys	Val	Met	Ala	Pro	Lys	Tyr	Gln	Glu	Leu		
		115					120					125					
Ala	Glu	Lys	Leu	Leu	Asp	Val	Val	Phe	Leu	Lys	Leu	Asp	Cys	Asn	Gln		
	130					135					140						
Glu	Asn	Lys	Pro	Leu	Ala	Lys	Glu	Leu	Gly	Ile	Arg	Val	Val	Pro	Thr		
145					150					155					160		
Phe	Lys	Ile	Leu	Lys	Gly	Gly	Lys	Ile	Val	Asp	Glu	Val	Thr	Gly	Ala		
			165						170					175			
Lys	Phe	Asp	Lys	Leu	Val	Ala	Ala	Ile	Glu	Ala	Ala	Arg	Ser	Ser			
			180					185					190				

<210> 56
 <211> 182
 <212> PRT
 <213> Pisum sativum

<400> 56																	
Met	Ala	Leu	Asn	Leu	Cys	Thr	Ser	Pro	Lys	Trp	Ile	Gly	Thr	Thr	Val		
1				5					10					15			
Phe	Asp	Ser	Ala	Ser	Ser	Ser	Lys	Pro	Ser	Leu	Ala	Ser	Ser	Phe	Ser		
			20				25						30				
Thr	Thr	Ser	Phe	Ser	Ser	Ser	Ile	Leu	Cys	Ser	Lys	Arg	Val	Gly	Leu		
		35					40					45					
Gln	Arg	Leu	Ser	Leu	Arg	Arg	Ser	Ile	Ser	Val	Ser	Val	Arg	Ser	Ser		
	50					55					60						

Leu	Glu	Thr	Ala	Gly	Pro	Thr	Val	Thr	Val	Gly	Lys	Val	Thr	Glu	Val
65					70					75					80
Asn	Lys	Asp	Thr	Phe	Trp	Pro	Ile	Val	Asn	Ala	Ala	Gly	Asp	Lys	Thr
				85					90					95	
Val	Val	Leu	Asp	Met	Phe	Thr	Lys	Trp	Cys	Gly	Pro	Cys	Lys	Val	Ile
			100					105					110		
Ala	Pro	Leu	Tyr	Glu	Glu	Leu	Ser	Gln	Lys	Tyr	Leu	Asp	Val	Val	Phe
		115					120					125			
Leu	Lys	Leu	Asp	Cys	Asn	Gln	Asp	Asn	Lys	Ser	Leu	Ala	Lys	Glu	Leu
	130					135					140				
Gly	Ile	Lys	Val	Val	Pro	Thr	Phe	Lys	Ile	Leu	Lys	Asp	Asn	Lys	Ile
145					150					155					160
Val	Lys	Glu	Val	Thr	Gly	Ala	Lys	Phe	Asp	Asp	Leu	Val	Ala	Ala	Ile
				165					170					175	
Asp	Thr	Val	Arg	Ser	Ser										
			180												

<210> 57
 <211> 190
 <212> PRT
 <213> Spinacia oleracea

Met	Ala	Leu	His	Leu	Ser	Leu	Ser	His	Gln	Ser	Trp	Thr	Ser	Pro	Ala
1				5					10					15	
His	Pro	Ile	Thr	Ser	Ser	Asp	Pro	Thr	Arg	Ser	Ser	Val	Pro	Gly	Thr
			20					25					30		
Gly	Leu	Ser	Arg	Arg	Val	Asp	Phe	Leu	Gly	Ser	Cys	Lys	Ile	Asn	Gly
		35					40					45			
Val	Phe	Val	Val	Lys	Arg	Lys	Asp	Arg	Arg	Arg	Met	Arg	Gly	Gly	Glu
	50					55					60				
Val	Arg	Ala	Ser	Met	Glu	Gln	Ala	Leu	Gly	Thr	Gln	Glu	Met	Glu	Ala
65					70					75					80
Ile	Val	Gly	Lys	Val	Thr	Glu	Val	Asn	Lys	Asp	Thr	Phe	Trp	Pro	Ile
				85				90						95	
Val	Lys	Ala	Ala	Gly	Asp	Lys	Pro	Val	Val	Leu	Asp	Met	Phe	Thr	Gln
			100					105					110		
Trp	Cys	Gly	Pro	Cys	Lys	Ala	Met	Ala	Pro	Lys	Tyr	Glu	Lys	Leu	Ala
		115					120					125			
Glu	Glu	Tyr	Leu	Asp	Val	Ile	Phe	Leu	Lys	Leu	Asp	Cys	Asn	Gln	Glu
	130					135					140				
Asn	Lys	Thr	Leu	Ala	Lys	Glu	Leu	Gly	Ile	Arg	Val	Val	Pro	Thr	Phe
145					150					155					160
Lys	Ile	Leu	Lys	Glu	Asn	Ser	Val	Val	Gly	Glu	Val	Thr	Gly	Ala	Lys
				165					170					175	
Tyr	Asp	Lys	Leu	Leu	Glu	Ala	Ile	Gln	Ala	Ala	Arg	Ser	Ser		
			180					185					190		

<210> 58
 <211> 106
 <212> PRT
 <213> Anabaena

Ser	Ala	Ala	Ala	Gln	Val	Thr	Asp	Ser	Thr	Phe	Lys	Gln	Glu	Val	Leu
1				5					10					15	
Asp	Ser	Asp	Val	Pro	Val	Leu	Val	Asp	Phe	Trp	Ala	Pro	Trp	Cys	Gly
			20					25					30		
Pro	Cys	Arg	Met	Val	Ala	Pro	Val	Val	Asp	Glu	Ile	Ala	Gln	Gln	Tyr
		35					40					45			
Glu	Gly	Lys	Ile	Lys	Val	Val	Lys	Val	Asn	Thr	Asp	Glu	Asn	Pro	Gln
	50					55					60				
Val	Ala	Ser	Gln	Tyr	Gly	Ile	Arg	Ser	Ile	Pro	Thr	Leu	Met	Ile	Phe
65					70					75					80
Lys	Gly	Gly	Gln	Lys	Val	Asp	Met	Val	Val	Gly	Ala	Val	Pro	Lys	Thr

95

<400> 59

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<210> 60
<211> 186
<212> PRT
<213> Arabidopsis thaliana
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<400> 60

- 55 -

<210> 61
 <211> 173
 <212> PRT
 <213> Arabidopsis thaliana

<400> 61
 Met Ala Ile Ser Ser Ser Ser Ser Ser Ile Cys Phe Asn Pro Thr Arg
 1 5 10 15
 Phe His Thr Ala Arg His Ile Ser Ser Pro Ser Arg Leu Phe Pro Val
 20 25 30
 Thr Ser Phe Ser Pro Arg Ser Leu Arg Phe Ser Asp Arg Arg Ser Leu
 35 40 45
 Leu Ser Ser Ser Ala Ser Arg Leu Arg Leu Ser Pro Leu Cys Val Arg
 50 55 60
 Asp Ser Arg Ala Ala Glu Val Thr Gln Arg Ser Trp Glu Asp Ser Val
 65 70 75 80
 Leu Lys Ser Glu Thr Pro Val Leu Val Glu Phe Tyr Thr Ser Trp Cys
 85 90 95
 Gly Pro Cys Arg Met Val His Arg Ile Ile Asp Glu Ile Ala Gly Asp
 100 105 110
 Tyr Ala Gly Lys Leu Asn Cys Tyr Leu Leu Asn Ala Asp Asn Asp Leu
 115 120 125
 Pro Val Ala Glu Glu Tyr Glu Ile Lys Ala Val Pro Val Val Leu Leu
 130 135 140
 Phe Lys Asn Gly Glu Lys Arg Glu Ser Ile Met Gly Thr Met Pro Lys
 145 150 155 160
 Glu Phe Tyr Ile Ser Ala Ile Glu Arg Val Leu Asn Ser
 165 170

<210> 62
 <211> 193
 <212> PRT
 <213> Arabidopsis thaliana

<400> 62
 Met Ala Ser Leu Leu Asp Ser Val Thr Val Thr Arg Val Phe Ser Leu
 1 5 10 15
 Pro Ile Ala Ala Ser Val Ser Ser Ser Ala Ala Pro Ser Val Ser
 20 25 30
 Arg Arg Arg Ile Ser Pro Ala Arg Phe Leu Glu Phe Arg Gly Leu Lys
 35 40 45
 Ser Ser Arg Ser Leu Val Thr Gln Ser Ala Ser Leu Gly Ala Asn Arg
 50 55 60
 Arg Thr Arg Ile Ala Arg Gly Gly Arg Ile Ala Cys Glu Ala Gln Asp
 65 70 75 80
 Thr Thr Ala Ala Ala Val Glu Val Pro Asn Leu Ser Asp Ser Glu Trp
 85 90 95
 Gln Thr Lys Val Leu Glu Ser Asp Val Pro Val Leu Val Glu Phe Trp
 100 105 110
 Ala Pro Trp Cys Gly Pro Cys Arg Met Ile His Pro Ile Val Asp Gln
 115 120 125
 Leu Ala Lys Asp Phe Ala Gly Lys Phe Lys Phe Tyr Lys Ile Asn Thr
 130 135 140
 Asp Glu Ser Pro Asn Thr Pro Asn Arg Tyr Gly Ile Arg Ser Val Pro
 145 150 155 160
 Thr Val Ile Ile Phe Lys Gly Gly Glu Lys Lys Asp Ser Ile Ile Gly
 165 170 175
 Ala Val Pro Arg Glu Thr Leu Glu Lys Thr Ile Glu Arg Phe Leu Val
 180 185 190
 Glu

<210> 63
 <211> 177

<212> PRT
 <213> Brassica napus

<400> 63
 Met Ala Ala Phe Thr Cys Thr Ser Ser Pro Pro Ile Ser Leu Arg Ser
 1 5 10 15
 Glu Met Met Ile Ala Ser Ser Lys Thr Val Ser Leu Ser Thr Arg Gln
 20 25 30
 Met Phe Ser Val Gly Gly Leu Arg Thr Arg Val Ser Leu Ser Ser Val
 35 40 45
 Ser Lys Asn Ser Arg Ala Ser Arg Leu Arg Arg Gly Gly Ile Ile Cys
 50 55 60
 Glu Ala Gln Asp Thr Ala Thr Gly Ile Pro Met Val Asn Asp Ser Thr
 65 70 75 80
 Trp Glu Ser Leu Val Leu Lys Ala Asp Glu Pro Val Val Val Asp Phe
 85 90 95
 Trp Ala Pro Trp Cys Gly Pro Cys Lys Met Ile Asp Pro Ile Val Asn
 100 105 110
 Glu Leu Ala Gln Gln Tyr Thr Gly Lys Ile Lys Phe Phe Lys Leu Asn
 115 120 125
 Thr Asp Asp Ser Pro Ala Thr Pro Gly Lys Tyr Gly Val Arg Ser Ile
 130 135 140
 Pro Thr Ile Met Ile Phe Val Lys Gly Glu Lys Lys Asp Thr Ile Ile
 145 150 155 160
 Gly Ala Val Pro Lys Thr Thr Leu Ala Thr Ser Ile Asp Lys Phe Leu
 165 170 175
 Gln

<210> 64
 <211> 140
 <212> PRT
 <213> Chlamydomonas reinhardtii

<400> 64
 Met Ala Leu Val Ala Arg Arg Ala Ala Val Pro Ser Ala Arg Ser Ser
 1 5 10 15
 Ala Arg Pro Ala Phe Ala Arg Ala Ala Pro Arg Arg Ser Val Val Val
 20 25 30
 Arg Ala Glu Ala Gly Ala Val Asn Asp Asp Thr Phe Lys Asn Val Val
 35 40 45
 Leu Glu Ser Ser Val Pro Val Leu Val Asp Phe Trp Ala Pro Trp Cys
 50 55 60
 Gly Pro Cys Arg Ile Ile Ala Pro Val Val Asp Glu Ile Ala Gly Glu
 65 70 75 80
 Tyr Lys Asp Lys Leu Lys Cys Val Lys Leu Asn Thr Asp Glu Ser Pro
 85 90 95
 Asn Val Ala Ser Glu Tyr Gly Ile Arg Ser Ile Pro Thr Ile Met Val
 100 105 110
 Phe Lys Gly Gly Lys Lys Cys Glu Thr Ile Ile Gly Ala Val Pro Lys
 115 120 125
 Ala Thr Ile Val Gln Thr Val Glu Lys Tyr Leu Asn
 130 135 140

<210> 65
 <211> 167
 <212> PRT
 <213> Zea mays

<400> 65
 Met Ala Met Glu Thr Cys Phe Arg Ala Trp Ala Leu His Ala Pro Ala
 1 5 10 15
 Gly Ser Lys Asp Arg Leu Leu Val Gly Asn Leu Val Leu Pro Ser Lys
 20 25 30
 Arg Ala Leu Ala Pro Leu Ser Val Gly Arg Val Ala Thr Arg Arg Pro

		35					40			45					
Arg	His	Val	Cys	Gln	Ser	Lys	Asn	Ala	Val	Asp	Glu	Val	Val	Val	Ala
	50					55					60				
Asp	Glu	Lys	Asn	Trp	Asp	Gly	Leu	Val	Met	Ala	Cys	Glu	Thr	Pro	Val
65					70					75					80
Leu	Val	Glu	Phe	Trp	Ala	Pro	Trp	Cys	Gly	Pro	Cys	Arg	Met	Ile	Ala
			85						90					95	
Pro	Val	Ile	Asp	Glu	Leu	Ala	Lys	Asp	Tyr	Ala	Gly	Lys	Ile	Thr	Cys
			100					105					110		
Cys	Lys	Val	Asn	Thr	Asp	Asp	Ser	Pro	Asn	Val	Ala	Ser	Thr	Tyr	Gly
		115					120					125			
Ile	Arg	Ser	Ile	Pro	Thr	Val	Leu	Ile	Phe	Lys	Gly	Gly	Glu	Lys	Lys
	130					135					140				
Glu	Ser	Val	Ile	Gly	Ala	Val	Pro	Lys	Ser	Thr	Leu	Thr	Thr	Leu	Ile
145					150					155					160
Asp	Lys	Tyr	Ile	Gly	Ser	Ser									
				165											

<210> 66
 <211> 172
 <212> PRT
 <213> Oryza sativa

Met	Ala	Leu	Glu	Thr	Cys	Phe	Arg	Ala	Trp	Ala	Thr	Leu	His	Ala	Pro
1				5					10					15	
Gln	Pro	Pro	Ser	Ser	Gly	Gly	Ser	Arg	Asp	Arg	Leu	Leu	Leu	Ser	Gly
			20					25					30		
Ala	Gly	Ser	Ser	Gln	Ser	Lys	Pro	Arg	Leu	Ser	Val	Ala	Ser	Pro	Ser
		35					40					45			
Pro	Leu	Arg	Pro	Ala	Ser	Arg	Phe	Ala	Cys	Gln	Cys	Ser	Asn	Val	Val
	50					55					60				
Asp	Glu	Val	Val	Val	Ala	Asp	Glu	Lys	Asn	Trp	Asp	Ser	Met	Val	Leu
65					70					75					80
Gly	Ser	Glu	Ala	Pro	Val	Leu	Val	Glu	Phe	Trp	Ala	Pro	Trp	Cys	Gly
			85						90					95	
Pro	Cys	Arg	Met	Ile	Ala	Pro	Val	Ile	Asp	Glu	Leu	Ala	Lys	Glu	Tyr
			100					105					110		
Val	Gly	Lys	Ile	Lys	Cys	Cys	Lys	Val	Asn	Thr	Asp	Asp	Ser	Pro	Asn
		115					120					125			
Ile	Ala	Thr	Asn	Tyr	Gly	Ile	Arg	Ser	Ile	Pro	Thr	Val	Leu	Met	Phe
	130					135					140				
Lys	Asn	Gly	Glu	Lys	Lys	Glu	Ser	Val	Ile	Gly	Ala	Val	Pro	Lys	Thr
145					150					155					160
Thr	Leu	Ala	Thr	Ile	Ile	Asp	Lys	Tyr	Val	Ser	Ser				
				165					170						

<210> 67
 <211> 172
 <212> PRT
 <213> Pisum sativum

Met	Ala	Leu	Glu	Ser	Leu	Phe	Lys	Ser	Ile	His	Thr	Lys	Thr	Ser	Leu
1				5					10					15	
Ser	Ser	Ser	Ile	Val	Phe	Ile	Phe	Lys	Gly	Lys	Ala	Cys	Leu	Leu	Thr
			20					25					30		
Ser	Lys	Ser	Arg	Ile	Gln	Glu	Ser	Phe	Ala	Glu	Leu	Asn	Ser	Phe	Thr
		35					40					45			
Ser	Leu	Val	Leu	Leu	Ile	Glu	Asn	His	Val	Leu	Leu	His	Ala	Arg	Glu
	50					55					60				
Ala	Val	Asn	Glu	Val	Gln	Val	Val	Asn	Asp	Ser	Ser	Trp	Asp	Glu	Leu
65					70					75					80
Val	Ile	Gly	Ser	Glu	Thr	Pro	Val	Leu	Val	Asp	Phe	Trp	Ala	Pro	Trp
				85					90					95	

Cys	Gly	Pro	Cys	Arg	Met	Ile	Ala	Pro	Ile	Ile	Asp	Glu	Leu	Ala	Lys
			100					105					110		
Glu	Tyr	Ala	Gly	Lys	Ile	Lys	Cys	Tyr	Lys	Leu	Asn	Thr	Asp	Glu	Ser
		115					120					125			
Pro	Asn	Thr	Ala	Thr	Lys	Tyr	Gly	Ile	Arg	Ser	Ile	Pro	Thr	Val	Leu
		130				135					140				
Phe	Phe	Lys	Asn	Gly	Glu	Arg	Lys	Asp	Ser	Val	Ile	Gly	Ala	Val	Pro
145					150					155					160
Lys	Ala	Thr	Leu	Ser	Glu	Lys	Val	Glu	Lys	Tyr	Ile				
				165					170						

<210> 68
 <211> 181
 <212> PRT
 <213> Spinacia oleracea

Met	Ala	Ile	Glu	Asn	Cys	Leu	Gln	Leu	Ser	Thr	Ser	Ala	Ser	Val	Gly
1				5					10					15	
Thr	Val	Ala	Val	Lys	Ser	His	Val	His	His	Leu	Gln	Pro	Ser	Ser	Lys
			20					25					30		
Val	Asn	Val	Pro	Thr	Phe	Arg	Gly	Leu	Lys	Arg	Ser	Phe	Pro	Ala	Leu
		35					40					45			
Ser	Ser	Ser	Val	Ser	Ser	Ser	Ser	Pro	Arg	Gln	Phe	Arg	Tyr	Ser	Ser
	50					55					60				
Val	Val	Cys	Lys	Ala	Ser	Glu	Ala	Val	Lys	Glu	Val	Gln	Asp	Val	Asn
65				70						75					80
Asp	Ser	Ser	Trp	Lys	Glu	Phe	Val	Leu	Glu	Ser	Glu	Val	Pro	Val	Met
				85					90					95	
Val	Asp	Phe	Trp	Ala	Pro	Trp	Cys	Gly	Pro	Cys	Lys	Leu	Ile	Ala	Pro
			100					105					110		
Val	Ile	Asp	Glu	Leu	Ala	Lys	Glu	Tyr	Ser	Gly	Lys	Ile	Ala	Val	Tyr
		115					120					125			
Lys	Leu	Asn	Thr	Asp	Glu	Ala	Pro	Gly	Ile	Ala	Thr	Gln	Tyr	Asn	Ile
	130					135					140				
Arg	Ser	Ile	Pro	Thr	Val	Leu	Phe	Phe	Lys	Asn	Gly	Glu	Arg	Lys	Glu
145					150					155					160
Ser	Ile	Ile	Gly	Ala	Val	Pro	Lys	Ser	Thr	Leu	Thr	Asp	Ser	Ile	Glu
				165					170					175	
Lys	Tyr	Leu	Ser	Pro											
				180											

<210> 69
 <211> 175
 <212> PRT
 <213> Triticum aestivum

Met	Ala	Leu	Glu	Thr	Cys	Leu	Arg	Gly	Trp	Ala	Leu	Tyr	Ala	Pro	Gln
1				5					10					15	
Ala	Gly	Ile	Arg	Glu	Arg	Leu	Ser	Ser	Gly	Ser	Tyr	Ala	Pro	Ser	Arg
			20					25					30		
Pro	Arg	Thr	Ala	Ala	Pro	Ala	Val	Val	Ser	Pro	Ser	Pro	Tyr	Lys	Ser
		35					40					45			
Ala	Leu	Val	Ala	Ala	Arg	Arg	Pro	Ser	Arg	Phe	Val	Cys	Lys	Cys	Lys
	50					55					60				
Asn	Val	Val	Asp	Glu	Val	Ile	Val	Ala	Asp	Glu	Lys	Asn	Trp	Asp	Asn
65				70						75					80
Met	Val	Ile	Ala	Cys	Glu	Ser	Pro	Val	Leu	Val	Glu	Phe	Trp	Ala	Pro
				85					90					95	
Trp	Cys	Gly	Pro	Cys	Arg	Met	Ile	Ala	Pro	Val	Ile	Asp	Glu	Leu	Ala
			100					105					110		
Lys	Asp	Tyr	Val	Gly	Lys	Ile	Lys	Cys	Cys	Lys	Val	Asn	Thr	Asp	Asp
		115					120					125			
Cys	Pro	Asn	Ile	Ala	Ser	Thr	Tyr	Gly	Ile	Arg	Ser	Ile	Pro	Thr	Val

130		135		140											
Leu	Met	Phe	Lys	Asp	Gly	Glu	Lys	Lys	Glu	Ser	Val	Ile	Gly	Ala	Val
145					150					155					160
Pro	Lys	Thr	Thr	Leu	Cys	Thr	Ile	Ile	Asp	Lys	Tyr	Ile	Gly	Ser	
				165					170					175	

<210> 70
 <211> 106
 <212> PRT
 <213> Anacystis nidulans

<400> 70															
Ser	Val	Ala	Ala	Ala	Val	Thr	Asp	Ala	Thr	Phe	Lys	Gln	Glu	Val	Leu
1		5							10					15	
Glu	Ser	Ser	Ile	Pro	Val	Leu	Val	Asp	Phe	Trp	Ala	Pro	Trp	Cys	Gly
			20					25					30		
Pro	Cys	Arg	Met	Val	Ala	Pro	Val	Val	Asp	Glu	Ile	Ala	Gln	Gln	Tyr
		35						40				45			
Ser	Asp	Gln	Val	Lys	Val	Val	Lys	Val	Asn	Thr	Asp	Glu	Asn	Pro	Ser
	50					55					60				
Val	Ala	Ser	Gln	Tyr	Gly	Ile	Arg	Ser	Ile	Pro	Thr	Leu	Met	Ile	Phe
65					70					75					80
Lys	Asp	Gly	Gln	Arg	Val	Asp	Thr	Val	Val	Gly	Ala	Val	Pro	Lys	Thr
			85						90					95	
Thr	Leu	Ala	Asn	Thr	Leu	Asp	Lys	His	Leu						
			100					105							

<210> 71
 <211> 107
 <212> PRT
 <213> Cyanidium caldarium

<400> 71															
Met	Pro	Ser	Pro	Ile	Gln	Val	Thr	Asp	Phe	Ser	Phe	Glu	Lys	Glu	Val
1				5					10					15	
Val	Asn	Ser	Glu	Lys	Leu	Val	Leu	Val	Asp	Phe	Trp	Ala	Pro	Trp	Cys
			20					25					30		
Gly	Pro	Cys	Arg	Met	Ile	Ser	Pro	Val	Ile	Asp	Glu	Leu	Ala	Gln	Glu
		35					40				45				
Tyr	Val	Glu	Gln	Val	Lys	Ile	Val	Lys	Ile	Asn	Thr	Asp	Glu	Asn	Pro
	50					55					60				
Ser	Ile	Ser	Ala	Glu	Tyr	Gly	Ile	Arg	Ser	Ile	Pro	Thr	Leu	Met	Leu
65					70					75					80
Phe	Lys	Asp	Gly	Lys	Arg	Val	Asp	Thr	Val	Ile	Gly	Ala	Val	Pro	Lys
			85						90					95	
Ser	Thr	Leu	Thr	Asn	Ala	Leu	Lys	Lys	Tyr	Leu					
			100					105							

<210> 72
 <211> 102
 <212> PRT
 <213> Cyanidioschyzon merolae

<400> 72															
Met	Leu	His	Ile	Asp	Glu	Leu	Thr	Phe	Glu	Asn	Glu	Val	Leu	Gln	Ser
1			5						10					15	
Glu	Lys	Leu	Val	Leu	Val	Asp	Phe	Trp	Ala	Pro	Trp	Cys	Gly	Pro	Cys
			20					25					30		
Arg	Met	Ile	Gly	Pro	Ile	Leu	Glu	Glu	Ile	Ala	Lys	Glu	Phe	Asn	Leu
		35					40					45			
Lys	Val	Val	Gln	Val	Asn	Thr	Asp	Glu	Asn	Pro	Asn	Leu	Ala	Thr	Phe
	50					55					60				
Tyr	Gly	Ile	Arg	Ser	Ile	Pro	Thr	Leu	Met	Leu	Phe	Lys	Lys	Gly	Gln
65					70					75					80

Arg Val Asp Thr Val Ile Gly Ala Val Pro Lys Ser Ile Leu Ile His
 85 90 95
 Thr Ile Asn Lys Tyr Leu
 100

<210> 73
 <211> 109
 <212> PRT
 <213> *Griffithsia pacifica*

<400> 73
 Met Ser Ile Ser Gln Val Ile Asp Thr Ser Phe His Glu Glu Val Ile
 1 5 10 15
 Asn Ser Arg Gln Pro Val Leu Val Asp Phe Trp Ala Pro Trp Cys Gly
 20 25 30
 Pro Cys Arg Met Ile Ala Ser Thr Ile Asp Glu Ile Ala His Asp Tyr
 35 40 45
 Lys Asp Lys Leu Lys Val Val Lys Val Asn Thr Asp Gln Asn Pro Thr
 50 55 60
 Ile Ala Thr Glu Tyr Gly Ile Arg Ser Ile Pro Thr Val Met Ile Phe
 65 70 75 80
 Ile Asn Gly Lys Lys Val Asp Thr Val Val Gly Ala Val Pro Lys Leu
 85 90 95
 Thr Leu Leu Asn Thr Leu Gln Lys His Leu Lys Ser Thr
 100 105

<210> 74
 <211> 107
 <212> PRT
 <213> *Porphyra yezoensis*

<400> 74
 Met Ser Val Ser Gln Val Thr Asp Ala Ser Phe Lys Gln Glu Val Ile
 1 5 10 15
 Asn Asn Asn Leu Pro Val Leu Val Asp Phe Trp Ala Pro Trp Cys Gly
 20 25 30
 Pro Cys Arg Met Val Ser Pro Val Val Asp Glu Ile Ala Glu Glu Tyr
 35 40 45
 Glu Ser Ser Ile Lys Val Val Lys Ile Asn Thr Asp Asp Asn Pro Thr
 50 55 60
 Ile Ala Ala Glu Tyr Gly Ile Arg Ser Ile Pro Thr Leu Met Ile Phe
 65 70 75 80
 Lys Ala Gly Glu Arg Val Asp Thr Val Ile Gly Ala Val Pro Lys Ser
 85 90 95
 Thr Leu Ala Ser Thr Leu Asn Lys Tyr Ile Ser
 100 105

<210> 75
 <211> 107
 <212> PRT
 <213> *Porphyra purpurea*

<400> 75
 Met Ser Val Ser Gln Val Thr Asp Ala Ser Phe Lys Gln Glu Val Ile
 1 5 10 15
 Asn Asn Asp Leu Pro Val Leu Val Asp Phe Trp Ala Pro Trp Cys Gly
 20 25 30
 Pro Cys Arg Met Val Ser Pro Val Val Asp Ala Ile Ala Glu Glu Tyr
 35 40 45
 Glu Ser Ser Ile Lys Val Val Lys Ile Asn Thr Asp Asp Asn Pro Thr
 50 55 60
 Ile Ala Ala Glu Tyr Gly Ile Arg Ser Ile Pro Thr Leu Met Ile Phe
 65 70 75 80
 Lys Ser Gly Glu Arg Val Asp Thr Val Ile Gly Ala Val Pro Lys Ser

85
 Thr Leu Glu Ser Thr Leu Asn Lys Tyr Ile Ser
 100 105

95

<210> 76
 <211> 114
 <212> PRT
 <213> Arabidopsis thaliana

<400> 76
 Met Ala Ser Glu Glu Gly Gln Val Ile Ala Cys His Thr Val Glu Thr
 1 5 10 15
 Trp Asn Glu Gln Leu Gln Lys Ala Asn Glu Ser Lys Thr Leu Val Val
 20 25 30
 Val Asp Phe Thr Ala Ser Trp Cys Gly Pro Cys Arg Phe Ile Ala Pro
 35 40 45
 Phe Phe Ala Asp Leu Ala Lys Lys Leu Pro Asn Val Leu Phe Leu Lys
 50 55 60
 Val Asp Thr Asp Glu Leu Lys Ser Val Ala Ser Asp Trp Ala Ile Gln
 65 70 75 80
 Ala Met Pro Thr Phe Met Phe Leu Lys Glu Gly Lys Ile Leu Asp Lys
 85 90 95
 Val Val Gly Ala Lys Lys Asp Glu Leu Gln Ser Thr Ile Ala Lys His
 100 105 110
 Leu Ala

<210> 77
 <211> 110
 <212> PRT
 <213> Anabaena

<400> 77
 Ser Lys Gly Val Ile Thr Ile Thr Asp Ala Glu Phe Glu Ser Glu Val
 1 5 10 15
 Leu Lys Ala Glu Gln Pro Val Leu Val Tyr Phe Trp Ala Ser Trp Cys
 20 25 30
 Gly Pro Cys Gln Leu Met Ser Pro Leu Ile Asn Leu Ala Ala Asn Thr
 35 40 45
 Tyr Ser Asp Arg Leu Lys Val Val Lys Leu Glu Ile Asp Pro Asn Pro
 50 55 60
 Thr Thr Val Lys Lys Tyr Lys Val Glu Gly Val Pro Ala Leu Arg Leu
 65 70 75 80
 Val Lys Gly Glu Gln Ile Leu Asp Ser Thr Glu Gly Val Ile Ser Lys
 85 90 95
 Asp Lys Leu Leu Ser Phe Leu Asp Thr His Leu Asn Asn Asn
 100 105 110

<210> 78
 <211> 123
 <212> PRT
 <213> Brassica napus

<400> 78
 Met Ala Ala Thr Ala Glu Val Ile Pro Ala Gly Glu Val Ile Ala Cys
 1 5 10 15
 His Thr Val Glu Asp Trp Asn Asn Lys Leu Lys Ala Ala Lys Glu Ser
 20 25 30
 Asn Lys Leu Ile Val Ile Asp Phe Thr Ala Val Trp Cys Pro Pro Cys
 35 40 45
 Arg Phe Ile Ala Pro Ile Phe Val Glu Leu Ala Lys Lys His Leu Asp
 50 55 60
 Val Val Phe Phe Lys Val Asp Val Asp Glu Leu Ala Thr Val Ala Gln
 65 70 75 80

Glu Phe Asp Val Gln Ala Met Pro Thr Phe Val Tyr Met Lys Gly Glu
85 90 95
Glu Lys Leu Asp Lys Val Val Gly Ala Ala Lys Glu Glu Ile Glu Ala
100 105 110
Lys Leu Leu Lys His Ser Gln Val Ala Ala Ala
115 120

<210> 79
<211> 126
<212> PRT
<213> *Nicotiana tabacum*

<400> 79
Met Ala Ala Asn Asp Ala Thr Ser Ser Glu Glu Gly Gln Val Phe Gly
1 5 10 15
Cys His Lys Val Glu Glu Trp Asn Glu Tyr Phe Lys Lys Gly Val Glu
20 25 30
Thr Lys Lys Leu Val Val Val Asp Phe Thr Ala Ser Trp Cys Gly Pro
35 40 45
Cys Arg Phe Ile Ala Pro Ile Leu Ala Asp Ile Ala Lys Lys Met Pro
50 55 60
His Val Ile Phe Leu Lys Val Asp Val Asp Glu Leu Lys Thr Val Ser
65 70 75 80
Ala Glu Trp Ser Val Glu Ala Met Pro Thr Phe Val Phe Ile Lys Asp
85 90 95
Gly Lys Glu Val Asp Arg Val Val Gly Ala Lys Lys Glu Glu Leu Gln
100 105 110
Gln Thr Ile Val Lys His Ala Ala Pro Ala Thr Val Thr Ala
115 120 125

<210> 80
<211> 133
<212> PRT
<213> *Arabidopsis thaliana*

<400> 80
Met Gly Gly Ala Leu Ser Thr Val Phe Gly Ser Gly Glu Asp Ala Thr
1 5 10 15
Ala Ala Gly Thr Glu Ser Glu Pro Ser Arg Val Leu Lys Phe Ser Ser
20 25 30
Ser Ala Arg Trp Gln Leu His Phe Asn Glu Ile Lys Glu Ser Asn Lys
35 40 45
Leu Leu Val Val Asp Phe Ser Ala Ser Trp Cys Gly Pro Cys Arg Met
50 55 60
Ile Glu Pro Ala Ile His Ala Met Ala Asp Lys Phe Asn Asp Val Asp
65 70 75 80
Phe Val Lys Leu Asp Val Asp Glu Leu Pro Asp Val Ala Lys Glu Phe
85 90 95
Asn Val Thr Ala Met Pro Thr Phe Val Leu Val Lys Arg Gly Lys Glu
100 105 110
Ile Glu Arg Ile Ile Gly Ala Lys Lys Asp Glu Leu Glu Lys Lys Val
115 120 125
Ser Lys Leu Arg Ala
130

<210> 81
<211> 119
<212> PRT
<213> *Brassica napus*

<400> 81
Met Ala Ala Glu Glu Gly Gln Val Ile Gly Cys His Glu Ile Asp Val
1 5 10 15
Trp Ala Val Gln Leu Asp Thr Ala Lys Gln Ser Asn Lys Leu Ile Val

Ile	Asp	Phe	20	Thr	Ala	Ser	Trp	Cys	25	Pro	Pro	Cys	Arg	Met	30	Ile	Ala	Pro
			35						40						45			
Val	Phe	Ala	Asp	Leu	Ala	Lys	Lys	Phe	Met	Ser	Ser	Ala	Ile	Phe	Phe			
			50				55					60						
Lys	Val	Asp	Val	Asp	Glu	Leu	Gln	Asn	Val	Ala	Gln	Glu	Phe	Gly	Val			
65					70					75					80			
Glu	Ala	Met	Pro	Thr	Phe	Val	Leu	Ile	Lys	Asp	Gly	Asn	Val	Val	Asp			
				85					90						95			
Lys	Val	Val	Gly	Ala	Arg	Lys	Glu	Asp	Leu	His	Ala	Thr	Ile	Ala	Lys			
			100					105							110			
His	Thr	Gly	Val	Ala	Thr	Ala												
			115															

<210> 82
 <211> 118
 <212> PRT
 <213> Nicotiana tabacum

Met	Ala	Glu	Glu	Gly	Gln	Val	Ile	Gly	Val	His	Thr	Val	Asp	Ala	Trp			
1				5				10					15					
Asn	Glu	His	Leu	Gln	Lys	Gly	Ile	Asp	Asp	Lys	Lys	Leu	Ile	Val	Val			
			20					25					30					
Asp	Phe	Thr	Ala	Ser	Trp	Cys	Gly	Pro	Cys	Lys	Phe	Ile	Ala	Ser	Phe			
			35				40					45						
Tyr	Ala	Glu	Leu	Ala	Lys	Lys	Met	Pro	Thr	Val	Thr	Phe	Leu	Lys	Val			
			50			55					60							
Asp	Val	Asp	Glu	Leu	Lys	Ser	Val	Ala	Thr	Asp	Trp	Ala	Val	Glu	Ala			
65					70				75					80				
Met	Pro	Thr	Phe	Met	Phe	Leu	Lys	Glu	Gly	Lys	Ile	Val	Asp	Lys	Val			
				85				90						95				
Val	Gly	Ala	Lys	Lys	Asp	Glu	Leu	Gln	Gln	Thr	Ile	Ala	Lys	His	Ile			
			100					105					110					
Ser	Ser	Thr	Ser	Thr	Ala													
			115															

<210> 83
 <211> 118
 <212> PRT
 <213> Arabidopsis thaliana

Met	Ala	Ala	Glu	Gly	Glu	Val	Ile	Ala	Cys	His	Thr	Val	Glu	Asp	Trp			
1				5				10					15					
Thr	Glu	Lys	Leu	Lys	Ala	Ala	Asn	Glu	Ser	Lys	Lys	Leu	Ile	Val	Ile			
			20					25					30					
Asp	Phe	Thr	Ala	Thr	Trp	Cys	Pro	Pro	Cys	Arg	Phe	Ile	Ala	Pro	Val			
			35				40					45						
Phe	Ala	Asp	Leu	Ala	Lys	Lys	His	Leu	Asp	Val	Val	Phe	Phe	Lys	Val			
			50			55					60							
Asp	Val	Asp	Glu	Leu	Asn	Thr	Val	Ala	Glu	Glu	Phe	Lys	Val	Gln	Ala			
65					70				75					80				
Met	Pro	Thr	Phe	Ile	Phe	Met	Lys	Glu	Gly	Glu	Ile	Lys	Glu	Thr	Val			
				85				90						95				
Val	Gly	Ala	Ala	Lys	Glu	Glu	Ile	Ile	Ala	Asn	Leu	Glu	Lys	His	Lys			
			100					105					110					
Thr	Val	Val	Ala	Ala	Ala													
			115															

<210> 84
 <211> 125
 <212> PRT
 <213> Arabidopsis thaliana

<400> 84
 Met Ala Ala Glu Glu Gly Gln Val Ile Gly Cys His Thr Asn Asp Val
 1 5 10 15
 Trp Thr Val Gln Leu Asp Lys Ala Lys Glu Ser Asn Lys Leu Ile Val
 20 25 30
 Ile Asp Phe Thr Ala Ser Trp Cys Pro Pro Cys Arg Met Ile Ala Pro
 35 40 45
 Ile Phe Asn Asp Leu Ala Lys Lys Phe Met Ser Ser Ala Ile Phe Phe
 50 55 60
 Lys Val Asp Val Asp Glu Leu Gln Ser Val Ala Lys Glu Phe Gly Val
 65 70 75 80
 Glu Ala Met Pro Thr Phe Val Phe Ile Lys Ala Gly Glu Val Val Asp
 85 90 95
 Lys Leu Val Gly Ala Asn Lys Glu Asp Leu Gln Ala Lys Ile Val Lys
 100 105 110
 His Thr Gly Val Thr Thr Val Val Asn Gln Phe Glu Ala
 115 120 125

<210> 85
 <211> 118
 <212> PRT
 <213> Arabidopsis thaliana

<400> 85
 Met Ala Gly Glu Gly Glu Val Ile Ala Cys His Thr Leu Glu Val Trp
 1 5 10 15
 Asn Glu Lys Val Lys Asp Ala Asn Glu Ser Lys Lys Leu Ile Val Ile
 20 25 30
 Asp Phe Thr Ala Ser Trp Cys Pro Pro Cys Arg Phe Ile Ala Pro Val
 35 40 45
 Phe Ala Glu Met Ala Lys Lys Phe Thr Asn Val Val Phe Phe Lys Ile
 50 55 60
 Asp Val Asp Glu Leu Gln Ala Val Ala Gln Glu Phe Lys Val Glu Ala
 65 70 75 80
 Met Pro Thr Phe Val Phe Met Lys Glu Gly Asn Ile Ile Asp Arg Val
 85 90 95
 Val Gly Ala Ala Lys Asp Glu Ile Asn Glu Lys Leu Met Lys His Gly
 100 105 110
 Gly Leu Val Ala Ser Ala
 115

<210> 86
 <211> 123
 <212> PRT
 <213> Brassica rapa

<400> 86
 Met Ala Ala Thr Ala Glu Leu Ile Pro Ala Gly Glu Val Ile Ala Cys
 1 5 10 15
 His Thr Val Glu Asp Trp Asn Asn Lys Leu Lys Ala Ala Lys Glu Ser
 20 25 30
 Asn Lys Leu Ile Val Ile Asp Phe Thr Ala Val Trp Cys Pro Pro Cys
 35 40 45
 Arg Phe Ile Ala Pro Ile Phe Val Glu Leu Ala Lys Lys His Leu Asp
 50 55 60
 Val Val Phe Phe Lys Val Asp Val Asp Glu Leu Ala Thr Val Ala Lys
 65 70 75 80
 Glu Phe Asp Val Gln Ala Met Pro Thr Phe Val Tyr Met Lys Gly Glu
 85 90 95
 Glu Lys Leu Asp Lys Val Val Gly Ala Ala Lys Glu Glu Ile Glu Ala
 100 105 110
 Lys Leu Leu Lys His Ser Gln Val Ala Ala Ala
 115 120

<210> 87
 <211> 112
 <212> PRT
 <213> Chlamydomonas reinhardtii

<400> 87
 Gly Gly Ser Val Ile Val Ile Asp Ser Lys Ala Ala Trp Asp Ala Gln
 1 5 10 15
 Leu Ala Lys Gly Lys Glu Glu His Lys Pro Ile Val Val Asp Phe Thr
 20 25 30
 Ala Thr Trp Cys Gly Pro Cys Lys Met Ile Ala Pro Leu Phe Glu Thr
 35 40 45
 Leu Ser Asn Asp Tyr Ala Gly Lys Val Ile Phe Leu Lys Val Asp Val
 50 55 60
 Asp Ala Val Ala Ala Val Ala Glu Ala Ala Gly Ile Thr Ala Met Pro
 65 70 75 80
 Thr Phe His Val Tyr Lys Asp Gly Val Lys Ala Asp Asp Leu Val Gly
 85 90 95
 Ala Ser Gln Asp Lys Leu Lys Ala Leu Val Ala Lys His Ala Ala Ala
 100 105 110

<210> 88
 <211> 116
 <212> PRT
 <213> Fagopyrum esculentum

<400> 88
 Met Ala Glu Glu Ala Gln Val Ile Ala Cys His Thr Val Gln Glu Trp
 1 5 10 15
 Asn Glu Lys Phe Gln Lys Ala Lys Asp Ser Gly Lys Leu Ile Val Ile
 20 25 30
 Asp Phe Thr Ala Ser Trp Cys Gly Pro Cys Arg Val Ile Thr Pro Tyr
 35 40 45
 Val Ser Glu Leu Ala Lys Lys Phe Pro His Val Ala Phe Phe Lys Val
 50 55 60
 Asp Val Asp Asp Leu Lys Asp Val Ala Glu Glu Tyr Lys Val Glu Ala
 65 70 75 80
 Met Pro Ser Phe Val Ile Leu Lys Glu Gly Gln Glu Val Glu Arg Ile
 85 90 95
 Val Gly Ala Arg Lys Asp Glu Leu Leu His Lys Ile Ala Val His Ala
 100 105 110
 Pro Ile Thr Ala
 115

<210> 89
 <211> 122
 <212> PRT
 <213> Oryza sativa

<400> 89
 Met Ala Ala Glu Glu Gly Val Val Ile Ala Cys His Asn Lys Asp Glu
 1 5 10 15
 Phe Asp Ala Gln Met Thr Lys Ala Lys Glu Ala Gly Lys Val Val Ile
 20 25 30
 Ile Asp Phe Thr Ala Ser Trp Cys Gly Pro Cys Arg Phe Ile Ala Pro
 35 40 45
 Val Phe Ala Glu Tyr Ala Lys Lys Phe Pro Gly Ala Val Phe Leu Lys
 50 55 60
 Val Asp Val Asp Glu Leu Lys Glu Val Ala Glu Lys Tyr Asn Val Glu
 65 70 75 80
 Ala Met Pro Thr Phe Leu Phe Ile Lys Asp Gly Ala Glu Ala Asp Lys
 85 90 95
 Val Val Gly Ala Arg Lys Asp Asp Leu Gln Asn Thr Ile Val Lys His
 100 105 110
 Val Gly Ala Thr Ala Ala Ser Ala Ser Ala

<210> 90
 <211> 125
 <212> PRT
 <213> *Picea mariana*

<400> 90
 Met Ala Glu Gly Asn Val Phe Ala Cys His Ser Thr Glu Gly Trp Arg
 1 5 10 15
 Ser Lys Leu Gln Glu Ala Ile Asp Thr Lys Arg Leu Val Ala Val Asp
 20 25 30
 Phe Thr Ala Thr Trp Cys Gly Pro Cys Arg Val Ile Gly Pro Val Phe
 35 40 45
 Val Glu Leu Ser Lys Lys Phe Pro Glu Ile Phe Phe Leu Lys Val Asp
 50 55 60
 Val Asp Glu Leu Arg Asp Val Ala Gln Glu Trp Asp Val Glu Ala Met
 65 70 75 80
 Pro Thr Phe Ile Phe Ile Lys Asp Gly Lys Ala Val Asp Lys Val Val
 85 90 95
 Gly Ala Lys Lys Asp Asp Leu Glu Arg Lys Val Ala Ala Leu Ala Ala
 100 105 110
 Ala Ala Thr Thr Thr Glu Ala Thr Leu Pro Ala Gln Ala
 115 120 125

<210> 91
 <211> 118
 <212> PRT
 <213> *Ricinus communis*

<400> 91
 Met Ala Ala Glu Glu Gly Gln Val Ile Gly Cys His Thr Val Glu Ala
 1 5 10 15
 Trp Asn Glu Gln Leu Gln Lys Gly Asn Asp Thr Lys Gly Leu Ile Val
 20 25 30
 Val Asp Phe Thr Ala Ser Trp Cys Gly Pro Cys Arg Phe Ile Ala Pro
 35 40 45
 Phe Leu Ala Glu Leu Ala Lys Lys Leu Pro Asn Val Thr Phe Leu Lys
 50 55 60
 Val Asp Val Asp Glu Leu Lys Thr Val Ala His Glu Trp Ala Val Glu
 65 70 75 80
 Ser Met Pro Thr Phe Met Phe Leu Lys Glu Gly Lys Ile Met Asp Lys
 85 90 95
 Val Val Gly Ala Lys Lys Asp Glu Leu Gln Gln Thr Ile Ala Lys His
 100 105 110
 Met Ala Thr Ala Ser Thr
 115

<210> 92
 <211> 126
 <212> PRT
 <213> *triticum aestivum*

<400> 92
 Ala Ala Ser Ala Ala Thr Ala Thr Ala Thr Ala Ala Ala Val Gly Ala
 1 5 10 15
 Gly Glu Val Ile Ser Val His Ser Leu Glu Gln Trp Thr Met Gln Ile
 20 25 30
 Glu Glu Ala Asn Ala Ala Lys Lys Leu Val Val Ile Asp Phe Thr Ala
 35 40 45
 Ser Trp Cys Gly Pro Cys Arg Ile Met Ala Pro Ile Phe Ala Asp Leu
 50 55 60
 Ala Lys Lys Phe Pro Ala Val Phe Leu Lys Val Asp Val Asp Glu
 65 70 75 80

Leu	Lys	Pro	Ile	Ala	Glu	Gln	Phe	Ser	Val	Glu	Ala	Met	Pro	Thr	Phe
			85						90					95	
Leu	Phe	Met	Lys	Glu	Gly	Asp	Val	Lys	Asp	Arg	Val	Val	Gly	Ala	Ile
			100					105					110		
Lys	Glu	Glu	Leu	Thr	Thr	Lys	Val	Gly	Leu	His	Ala	Ala	Gln		
		115					120					125			

<210> 93
 <211> 109
 <212> PRT
 <213> *Aspergillus nidulans*

<400> 93															
Gly	Ala	Ser	Glu	His	Val	Pro	Pro	Ile	Thr	Ser	Lys	Ala	Glu	Phe	Gln
1				5					10					15	
Glu	Lys	Val	Leu	Asn	Ala	Lys	Gly	Phe	Val	Val	Val	Asp	Cys	Phe	Ala
			20					25					30		
Thr	Trp	Cys	Gly	Pro	Cys	Lys	Ala	Ile	Ala	Pro	Thr	Val	Glu	Lys	Phe
		35					40					45			
Ala	Gln	Thr	Tyr	Thr	Asp	Ala	Ser	Phe	Tyr	Gln	Ile	Asp	Val	Asp	Glu
	50					55					60				
Leu	Ser	Glu	Val	Ala	Ala	Glu	Leu	Gly	Ile	Arg	Ala	Met	Pro	Thr	Phe
65					70					75					80
Leu	Leu	Phe	Lys	Asp	Gly	Gln	Lys	Val	Ser	Asp	Val	Val	Gly	Ala	Asn
			85						90					95	
Pro	Gly	Ala	Leu	Glu	Ala	Gly	Ile	Lys	Ala	Leu	Leu	Ala			
			100					105							

<210> 94
 <211> 105
 <212> PRT
 <213> *Alicyclobacillus*

<400> 94															
Ala	Thr	Met	Thr	Leu	Thr	Asp	Ala	Asn	Phe	Gln	Gln	Ala	Ile	Gln	Gly
1				5					10					15	
Asp	Lys	Pro	Val	Leu	Val	Asp	Phe	Trp	Ala	Ala	Trp	Cys	Gly	Pro	Cys
			20					25					30		
Arg	Met	Met	Ala	Pro	Val	Leu	Glu	Glu	Phe	Ala	Glu	Ala	His	Ala	Asp
		35					40					45			
Lys	Val	Thr	Val	Ala	Lys	Leu	Asn	Val	Asp	Glu	Asn	Pro	Glu	Thr	Thr
	50					55					60				
Ser	Gln	Phe	Gly	Ile	Met	Ser	Ile	Pro	Thr	Leu	Ile	Leu	Phe	Lys	Gly
65					70					75					80
Gly	Arg	Pro	Val	Lys	Gln	Leu	Ile	Gly	Tyr	Gln	Pro	Lys	Glu	Gln	Leu
			85						90					95	
Glu	Ala	Gln	Leu	Ala	Asp	Val	Leu	Gln							
			100					105							

<210> 95
 <211> 91
 <212> PRT
 <213> *Archaeoglobus fulgidus*

<400> 95															
Met	Val	Met	Met	Lys	Leu	Phe	Thr	Ser	Pro	Thr	Cys	Pro	Tyr	Cys	Pro
1				5					10					15	
Lys	Ala	Glu	Lys	Val	Val	Ser	Lys	Val	Ala	Lys	Glu	Glu	Gly	Val	Leu
			20					25					30		
Ala	Ile	Asn	Leu	Pro	Val	Asn	Thr	Asp	Glu	Gly	Leu	Lys	Glu	Ala	Leu
		35					40					45			
Lys	Phe	Gly	Ile	Arg	Gly	Val	Pro	Ala	Leu	Val	Ile	Asn	Asp	Lys	Tyr
	50					55					60				
Leu	Ile	Leu	Gly	Val	Pro	Asp	Glu	Gly	Glu	Leu	Arg	Gln	Leu	Ile	Arg

65					70					75		80
Lys	Leu	Lys	Gly	Gly	Glu	Glu	Tyr	Gly	Ala	Ser		
				85					90			

<210> 96
 <211> 103
 <212> PRT
 <213> Bacillus subtilis

<400> 96
 Ala Ile Val Lys Ala Thr Asp Gln Ser Phe Ser Ala Glu Thr Ser Glu
 1 5 10 15
 Gly Val Val Leu Ala Asp Phe Trp Ala Pro Trp Cys Gly Pro Cys Lys
 20 25 30
 Met Ile Ala Pro Val Leu Glu Glu Leu Asp Gln Glu Met Gly Asp Lys
 35 40 45
 Leu Lys Ile Val Lys Ile Asp Val Asp Glu Asn Gln Glu Thr Ala Gly
 50 55 60
 Lys Tyr Gly Val Met Ser Ile Pro Thr Leu Leu Val Leu Lys Asp Gly
 65 70 75 80
 Glu Val Val Glu Thr Ser Val Gly Phe Lys Pro Lys Glu Ala Leu Gln
 85 90 95
 Glu Leu Val Asn Lys His Leu
 100

<210> 97
 <211> 87
 <212> PRT
 <213> Bacteriophage T4

<400> 97
 Met Phe Lys Val Tyr Gly Tyr Asp Ser Asn Ile His Lys Cys Val Tyr
 1 5 10 15
 Cys Asp Asn Ala Lys Arg Leu Leu Thr Val Lys Lys Gln Pro Phe Glu
 20 25 30
 Phe Ile Asn Ile Met Pro Glu Lys Gly Val Phe Asp Asp Glu Lys Ile
 35 40 45
 Ala Glu Leu Leu Thr Lys Leu Gly Arg Asp Thr Gln Ile Gly Leu Thr
 50 55 60
 Met Pro Gln Val Phe Ala Pro Asp Gly Ser His Ile Gly Gly Phe Asp
 65 70 75 80
 Gln Leu Arg Glu Tyr Phe Lys
 85

<210> 98
 <211> 117
 <212> PRT
 <213> Borrelia burgdorferi

<400> 98
 Met Ala Ile Ser Leu Thr Glu Glu Asp Phe Val Val Lys Val Phe Asp
 1 5 10 15
 Tyr Lys Asn Asp Lys Glu Trp Ser Phe Arg Gly Asp Arg Pro Ala Ile
 20 25 30
 Ile Asp Phe Tyr Ala Asn Trp Cys Gly Pro Cys Lys Met Leu Ser Pro
 35 40 45
 Ile Phe Glu Lys Leu Ser Lys Lys Tyr Glu Asn Ser Ile Asp Phe Tyr
 50 55 60
 Lys Val Asp Thr Asp Lys Glu Gln Asp Ile Ser Ser Ala Ile Gly Val
 65 70 75 80
 Gln Ser Leu Pro Thr Ile Leu Phe Ile Pro Val Asp Gly Lys Pro Lys
 85 90 95
 Val Ser Val Gly Phe Leu Gln Glu Asp Ala Phe Glu Asn Ile Ile Lys
 100 105 110

Asp Phe Phe Gly Phe
115

<210> 99
<211> 108
<212> PRT
<213> Buchnera aphidicola

<400> 99
Met Asn Lys Ile Ile Glu Leu Thr Asp Gln Asn Phe Glu Glu Gln Val
1 5 10 15
Leu Asn Ser Lys Ser Phe Phe Leu Val Asp Phe Trp Ala Gln Trp Cys
20 25 30
Asn Pro Cys Lys Ile Leu Ala Pro Ile Leu Glu Glu Ile Ser Lys Glu
35 40 45
Tyr Ser Asn Lys Val Ile Val Gly Lys Leu Asn Ile Glu Glu Asn Pro
50 55 60
Asn Thr Ala Pro Val Tyr Ser Ile Arg Ser Ile Pro Thr Leu Leu Leu
65 70 75 80
Phe Asn Asn Ser Glu Val Leu Ala Thr Lys Val Gly Ala Val Ser Lys
85 90 95
Leu Glu Leu Lys Glu Phe Leu Asp Glu Asn Ile Asn
100 105

<210> 100
<211> 108
<212> PRT
<213> aphidicola

<400> 100
Met Asn Lys Ile Ile Glu Leu Thr Asp Gln Asn Phe Glu Lys Glu Val
1 5 10 15
Leu Glu His Lys Ser Phe Val Leu Val Asp Phe Trp Ala Glu Trp Cys
20 25 30
Asn Pro Cys Lys Ile Leu Ala Pro Ile Leu Glu Glu Ile Ala Gln Glu
35 40 45
Tyr Phe Asn Lys Ile Lys Val Gly Lys Leu Asn Ile Glu Lys Asn Pro
50 55 60
Asn Thr Ala Pro Ile Tyr Ser Ile Arg Gly Ile Pro Ala Leu Leu Leu
65 70 75 80
Phe His Gly Arg Glu Val Leu Ala Thr Lys Val Gly Ala Ile Ser Lys
85 90 95
Leu Gln Leu Lys Asp Phe Leu Asp Glu Asn Ile Lys
100 105

<210> 101
<211> 108
<212> PRT
<213> Chlorobium limicola

<220>
<221> VARIANT
<222> 16, 17, 38, 42, 45, 54, 55, 58, 66, 72, 75, 79, 80, 81, 94,
99, 103
<223> Xaa = Any Amino Acid

<400> 101
Ala Gly Lys Tyr Phe Glu Ala Thr Asp Lys Asn Phe Gln Thr Glu Xaa
1 5 10 15
Xaa Asp Ser Asp Lys Ala Val Leu Val Asp Phe Trp Ala Ser Trp Cys
20 25 30
Gly Pro Cys Met Met Xaa Gly Pro Val Xaa Glu Gln Xaa Ala Asp Asp
35 40 45
Tyr Glu Gly Lys Ala Xaa Xaa Ala Lys Xaa Asn Val Asp Glu Asn Pro

50						55					60				
Asn	Xaa	Ala	Gly	Gln	Tyr	Gly	Xaa	Arg	Ser	Xaa	Pro	Thr	Met	Xaa	Xaa
65					70					75					80
Xaa	Lys	Gly	Gly	Lys	Val	Val	Asp	Gln	Met	Val	Gly	Ala	Xaa	Pro	Lys
				85					90					95	
Asn	Met	Xaa	Ala	Lys	Lys	Xaa	Asp	Glu	His	Ile	Gly				
			100					105							

<210> 102
 <211> 102
 <212> PRT
 <213> Chlamydia muridarum

<400> 102															
Met	Val	Gln	Ile	Val	Ser	Gln	Asp	Asn	Phe	Ala	Asp	Ser	Ile	Ala	Ser
1				5					10					15	
Gly	Leu	Val	Leu	Val	Asp	Phe	Phe	Ala	Glu	Trp	Cys	Gly	Pro	Cys	Lys
			20					25					30		
Met	Leu	Thr	Pro	Val	Leu	Glu	Ala	Leu	Ala	Ala	Glu	Leu	Pro	Tyr	Val
		35					40					45			
Thr	Ile	Leu	Lys	Leu	Asp	Ile	Asp	Ala	Ser	Pro	Arg	Pro	Ala	Glu	Gln
	50					55					60				
Phe	Gly	Val	Ser	Ser	Ile	Pro	Thr	Leu	Ile	Leu	Phe	Lys	Asp	Gly	Lys
65					70					75					80
Glu	Val	Glu	Arg	Ser	Val	Gly	Leu	Lys	Asp	Lys	Asp	Ser	Leu	Val	Lys
				85					90					95	
Leu	Ile	Ser	Lys	His	Gln										
			100												

<210> 103
 <211> 102
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 103															
Met	Val	Lys	Ile	Ile	Ser	Ser	Glu	Asn	Phe	Asp	Ser	Phe	Ile	Ala	Ser
1				5					10					15	
Gly	Leu	Val	Leu	Val	Asp	Phe	Phe	Ala	Glu	Trp	Cys	Gly	Pro	Cys	Arg
			20					25					30		
Met	Leu	Thr	Pro	Ile	Leu	Glu	Asn	Leu	Ala	Ala	Glu	Leu	Pro	His	Val
		35					40					45			
Thr	Ile	Gly	Lys	Ile	Asn	Ile	Asp	Glu	Asn	Ser	Lys	Pro	Ala	Glu	Thr
	50					55					60				
Tyr	Glu	Val	Ser	Ser	Ile	Pro	Thr	Leu	Ile	Leu	Phe	Lys	Asp	Gly	Asn
65					70					75					80
Glu	Val	Ala	Arg	Val	Val	Gly	Leu	Lys	Asp	Lys	Glu	Phe	Leu	Thr	Asn
				85					90					95	
Leu	Ile	Asn	Lys	His	Ala										
			100												

<210> 104
 <211> 102
 <212> PRT
 <213> Psittaci

<400> 104															
Met	Val	Lys	Val	Val	Ser	Ala	Glu	Asn	Phe	Asn	Ser	Phe	Ile	Ala	Thr
1				5					10					15	
Gly	Leu	Val	Leu	Ile	Asp	Phe	Phe	Ala	Glu	Trp	Cys	Gly	Pro	Cys	Lys
			20					25					30		
Met	Leu	Thr	Pro	Val	Leu	Glu	Ser	Leu	Glu	Ala	Glu	Val	Ser	Ser	Val
		35					40					45			
Leu	Ile	Gly	Lys	Val	Asn	Ile	Asp	Asp	His	Pro	Ala	Pro	Ala	Glu	Gln
	50					55					60				

Tyr Gly Val Ser Ser Ile Pro Thr Leu Ile Leu Phe Lys Asp Gly Lys
 65 70 75 80
 Glu Val Asp Arg Val Val Gly Leu Lys Asp Lys Asp Ser Leu Ile Arg
 85 90 95
 Leu Ile Asn Gln His Ser
 100

<210> 105
 <211> 102
 <212> PRT
 <213> Chlamydia trachomatis

<400> 105
 Met Val Gln Val Val Ser Gln Glu Asn Phe Ala Asp Ser Ile Ala Ser
 1 5 10 15
 Gly Leu Val Leu Ile Asp Phe Phe Ala Glu Trp Cys Gly Pro Cys Lys
 20 25 30
 Met Leu Thr Pro Val Leu Glu Ala Leu Ala Glu Leu Pro His Val
 35 40 45
 Thr Ile Leu Lys Val Asp Ile Asp Ser Ser Pro Arg Pro Ala Glu Gln
 50 55 60
 Tyr Ser Val Ser Ser Ile Pro Thr Leu Ile Leu Phe Lys Asp Gly Lys
 65 70 75 80
 Glu Val Glu Arg Ser Val Gly Leu Lys Asp Lys Asp Ser Leu Ile Lys
 85 90 95
 Leu Ile Ser Lys His Gln
 100

<210> 106
 <211> 105
 <212> PRT
 <213> Cornybacterium nephridii

<400> 106
 Ala Thr Val Lys Val Asp Asn Ser Asn Phe Gln Ser Asp Val Leu Gln
 1 5 10 15
 Ser Ser Glu Pro Val Val Val Asp Phe Trp Ala Glu Trp Cys Gly Pro
 20 25 30
 Cys Lys Met Ile Ala Pro Ala Leu Asp Glu Ile Ala Thr Glu Met Ala
 35 40 45
 Gly Gln Val Lys Ile Ala Lys Val Asn Ile Asp Glu Asn Pro Glu Leu
 50 55 60
 Ala Ala Gln Phe Gly Val Arg Ser Ile Pro Thr Leu Leu Met Phe Lys
 65 70 75 80
 Asp Gly Glu Leu Ala Ala Asn Met Val Gly Ala Ala Pro Lys Ser Arg
 85 90 95
 Leu Ala Asp Trp Ile Lys Ala Ser Ala
 100 105

<210> 107
 <211> 107
 <212> PRT
 <213> Cornybacterium nephridii

<400> 107
 Ser Ala Thr Ile Val Asn Thr Thr Asp Glu Asn Phe Gln Ala Asp Val
 1 5 10 15
 Leu Asp Ala Glu Thr Pro Val Leu Val Asp Phe Trp Ala Gly Trp Cys
 20 25 30
 Ala Pro Cys Lys Ala Ile Ala Pro Val Leu Glu Glu Leu Ser Asn Glu
 35 40 45
 Tyr Ala Gly Lys Val Lys Ile Val Lys Val Asp Val Thr Ser Cys Glu
 50 55 60
 Asp Thr Ala Val Lys Tyr Asn Ile Arg Asn Ile Pro Ala Leu Leu Met

65					70					75					80
Phe	Lys	Asp	Gly	Glu	Val	Val	Ala	Gln	Gln	Val	Gly	Ala	Ala	Pro	Arg
				85					90					95	
Ser	Lys	Leu	Ala	Ala	Phe	Ile	Asp	Gln	Asn	Ile					
			100					105							

<210> 108
 <211> 145
 <212> PRT
 <213> *Cornybacterium nephridii*

<400> 108
 Met Ile Ile Val Cys Ala Ser Cys Gly Ala Lys Asn Arg Val Pro Glu
 1 5 10 15
 Glu Lys Leu Ala Val His Pro Asn Cys Gly Gln Cys His Gln Ala Leu
 20 25 30
 Leu Pro Leu Glu Pro Ile Glu Leu Asn Glu Gln Asn Phe Ser Asn Phe
 35 40 45
 Ile Ser Asn Ser Asp Leu Pro Val Leu Ile Asp Leu Trp Ala Glu Trp
 50 55 60
 Cys Gly Pro Cys Lys Met Met Ala Pro His Phe Ala Gln Val Ala Lys
 65 70 75 80
 Gln Asn Pro Tyr Val Val Phe Ala Lys Ile Asp Thr Glu Ala Asn Pro
 85 90 95
 Arg Leu Ser Ala Ala Phe Asn Val Arg Ser Ile Pro Thr Leu Val Leu
 100 105 110
 Met Asn Lys Thr Thr Glu Val Ala Arg Ile Ser Gly Ala Leu Arg Thr
 115 120 125
 Leu Glu Leu Gln Gln Trp Leu Asp Gln Gln Leu Gln Gln Gln Gln Gly
 130 135 140
 Asn
 145

<210> 109
 <211> 107
 <212> PRT
 <213> *Chromatium vinosum*

<220>
 <221> VARIANT
 <222> 17, 38, 42, 55, 58, 60, 72, 107
 <223> Xaa = Any Amino Acid

<400> 109
 Ser Asp Ser Ile Val His Val Thr Asp Asp Ser Phe Glu Glu Glu Val
 1 5 10 15
 Xaa Lys Ser Pro Asp Pro Val Leu Val Asp Tyr Trp Ala Asp Trp Cys
 20 25 30
 Gly Pro Cys Lys Met Xaa Ala Pro Val Xaa Asp Glu Ile Ala Asp Glu
 35 40 45
 Tyr Ala Gly Arg Val Lys Xaa Ala Lys Xaa Asn Xaa Asp Glu Asn Pro
 50 55 60
 Asn Thr Pro Pro Arg Tyr Gly Xaa Arg Gly Ile Pro Thr Leu Met Leu
 65 70 75 80
 Phe Arg Gly Gly Glu Val Glu Ala Thr Lys Val Gly Ala Val Ser Lys
 85 90 95
 Ser Gln Leu Thr Ala Phe Leu Asp Ser Asn Xaa
 100 105

<210> 110
 <211> 107
 <212> PRT
 <213> *Clostridium litorale*

<400> 110
Met Leu Met Leu Asp Lys Asp Thr Phe Lys Thr Glu Val Leu Glu Gly
1 5 10 15
Thr Gly Tyr Val Leu Val Asp Tyr Phe Ser Asp Gly Cys Val Pro Cys
20 25 30
Lys Ala Leu Met Pro Ala Val Glu Glu Leu Ser Lys Lys Tyr Glu Gly
35 40 45
Arg Val Val Phe Ala Lys Leu Asn Thr Thr Gly Ala Arg Arg Leu Ala
50 55 60
Ile Ser Gln Lys Ile Leu Gly Leu Pro Thr Leu Ser Leu Tyr Lys Asp
65 70 75 80
Gly Val Lys Val Asp Glu Val Thr Lys Asp Asp Ala Thr Ile Glu Asn
85 90 95
Ile Glu Ala Met Val Glu Glu His Ile Ser Lys
100 105

<210> 111
<211> 40
<212> PRT
<213> Clostridium sporogenes

<400> 111
Met Leu Val Leu Asp Lys Lys Thr Phe Glu Glu Glu Val Leu Lys Thr
1 5 10 15
Lys Gly Tyr Val Leu Val Asp Tyr Phe Gly Asp Gly Cys Val Pro Cys
20 25 30
Glu Ala Leu Met Pro Asp Val Glu
35 40

<210> 112
<211> 33
<212> PRT
<213> Clostridium sticklandii

<400> 112
Met Phe Glu Leu Asp Lys Asp Thr Phe Glu Thr Glu Val Leu Gln Gly
1 5 10 15
Thr Gly Tyr Val Leu Val Asp Phe Trp Ser Glu Gly Cys Glu Pro Cys
20 25 30
Lys

<210> 113
<211> 106
<212> PRT
<213> Coprinus comatus

<400> 113
Met Val Gln Val Ile Ser Asn Leu Asp Glu Phe Asn Lys Leu Thr Asn
1 5 10 15
Ser Gly Lys Ile Ile Ile Ile Asp Phe Trp Ala Thr Trp Cys Gly Pro
20 25 30
Cys Arg Val Ile Ser Pro Ile Phe Glu Lys Phe Ser Glu Lys Tyr Gly
35 40 45
Ala Asn Asn Ile Val Phe Ala Lys Val Asp Val Asp Thr Ala Ser Asp
50 55 60
Ile Ser Glu Glu Ala Lys Ile Arg Ala Met Pro Thr Phe Gln Val Tyr
65 70 75 80
Lys Asp Gly Gln Lys Ile Asp Glu Leu Val Gly Ala Asn Pro Thr Ala
85 90 95
Leu Glu Ser Leu Val Gln Lys Ser Leu Ala
100 105

<210> 114
 <211> 105
 <212> PRT
 <213> Dictyostelium discoideum

<400> 114
 Met Ser Asn Arg Val Ile His Val Ser Ser Cys Glu Glu Leu Asp Lys
 1 5 10 15
 His Leu Arg Asp Glu Arg Val Val Val Asp Phe Ser Ala Val Trp Cys
 20 25 30
 Gly Pro Cys Arg Ala Ile Ser Pro Val Phe Glu Lys Leu Ser Asn Glu
 35 40 45
 Phe Ile Thr Phe Thr Phe Leu His Val Asp Ile Asp Lys Leu Asn Val
 50 55 60
 His Pro Ile Val Ser Lys Ile Lys Ser Val Pro Thr Phe His Phe Tyr
 65 70 75 80
 Arg Asn Gly Ser Lys Val Ser Glu Phe Ser Gly Ala Ser Glu Ser Ile
 85 90 95
 Leu Arg Ser Thr Leu Glu Ala Asn Lys
 100 105

<210> 115
 <211> 88
 <212> PRT
 <213> Dictyostelium discoideum

<400> 115
 Met Ser Arg Val Ile His Ile Ser Ser Asn Glu Glu Leu Asp Lys His
 1 5 10 15
 Leu Gln Ala Glu Arg Leu Val Ile Asp Phe Ser Ala Ala Trp Cys Gly
 20 25 30
 Pro Cys Arg Ala Ile Ser Pro Val Phe Glu Lys Leu Ser Asn Glu Phe
 35 40 45
 Val Thr Phe Thr Phe Val His Val Asp Ile Asp Lys Leu Ser Gly His
 50 55 60
 Pro Ile Val Lys Glu Ile Arg Ser Val Pro Thr Phe Tyr Phe Tyr Arg
 65 70 75 80
 Asn Gly Ala Lys Val Ser Glu Phe
 85

<210> 116
 <211> 88
 <212> PRT
 <213> Dictyostelium discoideum

<400> 116
 Met Ser Arg Val Ile His Ile Ser Ser Asn Glu Glu Leu Asp Lys His
 1 5 10 15
 Leu Gln Ala Glu Arg Leu Val Ile Asp Phe Ser Ala Ala Trp Cys Gly
 20 25 30
 Pro Cys Arg Ala Ile Ser Pro Val Phe Glu Lys Leu Ser Asn Glu Phe
 35 40 45
 Val Thr Phe Thr Phe Val His Val Asp Ile Asp Lys Leu Ser Gly His
 50 55 60
 Pro Ile Val Lys Glu Ile Arg Ser Val Pro Thr Phe Tyr Phe Tyr Arg
 65 70 75 80
 Asn Gly Ala Lys Val Ser Glu Phe
 85

<210> 117
 <211> 108
 <212> PRT
 <213> E coli, salmonella typhimurium

<400> 117
 Ser Asp Lys Ile Ile His Leu Thr Asp Asp Ser Phe Asp Thr Asp Val
 1 5 10 15
 Leu Lys Ala Asp Gly Ala Ile Leu Val Asp Phe Trp Ala Glu Trp Cys
 20 25 30
 Gly Pro Cys Lys Met Ile Ala Pro Ile Leu Asp Glu Ile Ala Asp Glu
 35 40 45
 Tyr Gln Gly Lys Leu Thr Val Ala Lys Leu Asn Ile Asp Gln Asn Pro
 50 55 60
 Gly Thr Ala Pro Lys Tyr Gly Ile Arg Gly Ile Pro Thr Leu Leu Leu
 65 70 75 80
 Phe Lys Asn Gly Glu Val Ala Ala Thr Lys Val Gly Ala Leu Ser Lys
 85 90 95
 Gly Gln Leu Lys Glu Phe Leu Asp Ala Asn Leu Ala
 100 105

<210> 118
 <211> 105
 <212> PRT
 <213> Synechocystis

<400> 118
 Met Ala Val Lys Lys Gln Phe Ala Asn Phe Ala Glu Met Leu Ala Gly
 1 5 10 15
 Ser Pro Lys Pro Val Leu Val Asp Phe Tyr Ala Thr Trp Cys Gly Pro
 20 25 30
 Cys Gln Met Met Ala Pro Ile Leu Glu Gln Val Gly Ser His Leu Arg
 35 40 45
 Gln Gln Ile Gln Val Val Lys Ile Asp Thr Asp Lys Tyr Pro Ala Ile
 50 55 60
 Ala Thr Gln Tyr Gln Ile Gln Ser Leu Pro Thr Leu Val Leu Phe Lys
 65 70 75 80
 Gln Gly Gln Pro Val His Arg Met Glu Gly Val Gln Gln Ala Ala Gln
 85 90 95
 Leu Ile Gln Gln Leu Gln Val Phe Val
 100 105

<210> 119
 <211> 139
 <212> PRT
 <213> E. coli

<400> 119
 Met Asn Thr Val Cys Thr His Cys Gln Ala Ile Asn Arg Ile Pro Asp
 1 5 10 15
 Asp Arg Ile Glu Asp Ala Ala Lys Cys Gly Arg Cys Gly His Asp Leu
 20 25 30
 Phe Asp Gly Glu Val Ile Asn Ala Thr Gly Glu Thr Leu Asp Lys Leu
 35 40 45
 Leu Lys Asp Asp Leu Pro Val Val Ile Asp Phe Trp Ala Pro Trp Cys
 50 55 60
 Gly Pro Cys Arg Asn Phe Ala Pro Ile Phe Glu Asp Val Ala Gln Glu
 65 70 75 80
 Arg Ser Gly Lys Val Arg Phe Val Lys Val Asn Thr Glu Ala Glu Arg
 85 90 95
 Glu Leu Ser Ser Arg Phe Gly Ile Arg Ser Ile Pro Thr Ile Met Ile
 100 105 110
 Phe Lys Asn Gly Gln Val Val Asp Met Leu Asn Gly Ala Val Pro Lys
 115 120 125
 Ala Pro Phe Asp Ser Trp Leu Asn Glu Ser Leu
 130 135

<210> 120
 <211> 110

<212> PRT

<213> Eubacterium acidaminophilum

<400> 120

Met	Ser	Ala	Leu	Leu	Val	Glu	Ile	Asp	Lys	Asp	Gln	Phe	Gln	Ala	Glu
1				5					10					15	
Val	Leu	Glu	Ala	Glu	Gly	Tyr	Val	Leu	Val	Asp	Tyr	Phe	Ser	Asp	Gly
			20					25					30		
Cys	Val	Pro	Cys	Lys	Ala	Leu	Met	Pro	Asp	Val	Glu	Glu	Leu	Ala	Ala
		35					40					45			
Lys	Tyr	Glu	Gly	Lys	Val	Ala	Phe	Arg	Lys	Phe	Asn	Thr	Ser	Ser	Ala
	50					55					60				
Arg	Arg	Leu	Ala	Ile	Ser	Gln	Lys	Ile	Leu	Gly	Leu	Pro	Thr	Ile	Thr
65					70					75					80
Leu	Tyr	Lys	Gly	Gly	Gln	Lys	Val	Glu	Glu	Val	Thr	Lys	Asp	Asp	Ala
				85				90						95	
Thr	Arg	Glu	Asn	Ile	Asp	Ala	Met	Ile	Ala	Lys	His	Val	Gly		
			100					105					110		

<210> 121

<211> 107

<212> PRT

<213> Haemophilus influenzae

<400> 121

Met	Ser	Glu	Val	Leu	His	Ile	Asn	Asp	Ala	Asp	Phe	Glu	Ser	Val	Val
1				5					10					15	
Val	Asn	Ser	Asp	Ile	Pro	Ile	Leu	Leu	Asp	Phe	Trp	Ala	Pro	Trp	Cys
			20					25					30		
Gly	Pro	Cys	Lys	Met	Ile	Ala	Pro	Val	Leu	Asp	Glu	Leu	Ala	Pro	Glu
		35					40					45			
Phe	Ala	Gly	Lys	Val	Lys	Ile	Val	Lys	Met	Asn	Val	Asp	Asp	Asn	Gln
	50					55				60					
Ala	Thr	Pro	Ala	Gln	Phe	Gly	Val	Arg	Ser	Ile	Pro	Thr	Leu	Leu	Leu
65					70				75						80
Ile	Lys	Asn	Gly	Gln	Val	Val	Ala	Thr	Gln	Val	Gly	Ala	Leu	Pro	Lys
				85				90						95	
Thr	Gln	Leu	Ala	Asn	Phe	Ile	Asn	Gln	His	Ile					
			100					105							

<210> 122

<211> 167

<212> PRT

<213> Haemophilus influenzae

<400> 122

Met	Lys	Ile	Lys	Lys	Leu	Leu	Lys	Asn	Gly	Leu	Ser	Leu	Phe	Leu	Thr
1				5					10					15	
Phe	Ile	Val	Ile	Thr	Ser	Ile	Leu	Asp	Phe	Val	Arg	Arg	Pro	Val	Val
			20					25					30		
Pro	Glu	Glu	Ile	Asn	Lys	Ile	Thr	Leu	Gln	Asp	Leu	Gln	Gly	Asn	Thr
		35					40					45			
Phe	Ser	Leu	Glu	Ser	Leu	Asp	Gln	Asn	Lys	Pro	Thr	Leu	Leu	Tyr	Phe
	50					55				60					
Trp	Gly	Thr	Trp	Cys	Gly	Tyr	Cys	Arg	Tyr	Thr	Ser	Pro	Ala	Ile	Asn
65					70				75						80
Ser	Leu	Ala	Lys	Glu	Gly	Tyr	Gln	Val	Val	Ser	Val	Ala	Leu	Arg	Ser
				85				90						95	
Gly	Asn	Glu	Ala	Asp	Val	Asn	Asp	Tyr	Leu	Ser	Lys	Asn	Asp	Tyr	His
			100					105					110		
Phe	Thr	Thr	Val	Asn	Asp	Pro	Lys	Gly	Glu	Phe	Ala	Glu	Arg	Trp	Gln
		115					120					125			
Ile	Asn	Val	Thr	Pro	Thr	Ile	Val	Leu	Leu	Ser	Lys	Gly	Lys	Met	Asp
	130					135					140				
Leu	Val	Thr	Thr	Gly	Leu	Thr	Ser	Tyr	Trp	Gly	Leu	Lys	Val	Arg	Leu

160

<210> 126
 <211> 102
 <212> PRT
 <213> Mycoplasma genitalium

<400> 126
 Met Val Thr Glu Ile Arg Ser Leu Lys Gln Leu Glu Glu Ile Phe Ser
 1 5 10 15
 Ala Lys Lys Asn Val Ile Val Asp Phe Trp Ala Ala Trp Cys Gly Pro
 20 25 30
 Cys Lys Leu Thr Ser Pro Glu Phe Gln Lys Ala Ala Asp Glu Phe Ser
 35 40 45
 Asp Ala Gln Phe Val Lys Val Asn Val Asp Asp His Thr Asp Ile Ala
 50 55 60
 Ala Ala Tyr Asn Ile Thr Ser Leu Pro Thr Ile Val Val Phe Glu Asn
 65 70 75 80
 Gly Val Glu Lys Lys Arg Ala Ile Gly Phe Met Pro Lys Thr Lys Ile
 85 90 95
 Ile Asp Leu Phe Asn Asn
 100

<210> 127
 <211> 458
 <212> PRT
 <213> mycobacterium leprae

<400> 127
 Met Asn Thr Thr Pro Ser Ala His Glu Thr Ile His Glu Val Ile Val
 1 5 10 15
 Ile Gly Ser Gly Pro Ala Gly Tyr Thr Ala Ala Leu Tyr Ala Ala Arg
 20 25 30
 Ala Gln Leu Thr Pro Leu Val Phe Glu Gly Thr Ser Phe Gly Gly Ala
 35 40 45
 Leu Met Thr Thr Thr Glu Val Glu Asn Tyr Pro Gly Phe Arg Asn Gly
 50 55 60
 Ile Thr Gly Pro Glu Leu Met Asp Asp Met Arg Glu Gln Ala Leu Arg
 65 70 75 80
 Phe Gly Ala Glu Leu Arg Thr Glu Asp Val Glu Ser Val Ser Leu Arg
 85 90 95
 Gly Pro Ile Lys Ser Val Val Thr Ala Glu Gly Gln Thr Tyr Gln Ala
 100 105 110
 Arg Ala Val Ile Leu Ala Met Gly Thr Ser Val Arg Tyr Leu Gln Ile
 115 120 125
 Pro Gly Glu Gln Glu Leu Leu Gly Arg Gly Val Ser Ala Cys Ala Thr
 130 135 140
 Cys Asp Gly Ser Phe Phe Arg Gly Gln Asp Ile Ala Val Ile Gly Gly
 145 150 155 160
 Gly Asp Ser Ala Met Glu Glu Ala Leu Phe Leu Thr Arg Phe Ala Arg
 165 170 175
 Ser Val Thr Leu Val His Arg Arg Asp Glu Phe Arg Ala Ser Lys Ile
 180 185 190
 Met Leu Gly Arg Ala Arg Asn Asn Asp Lys Ile Lys Phe Ile Thr Asn
 195 200 205
 His Thr Val Val Ala Val Asn Gly Tyr Thr Thr Val Thr Gly Leu Arg
 210 215 220
 Leu Arg Asn Thr Thr Thr Gly Glu Glu Thr Thr Leu Val Val Thr Gly
 225 230 235 240
 Val Phe Val Ala Ile Gly His Glu Pro Arg Ser Ser Leu Val Ser Asp
 245 250 255
 Val Val Asp Ile Asp Pro Asp Gly Tyr Val Leu Val Lys Gly Arg Thr
 260 265 270
 Thr Ser Thr Ser Met Asp Gly Val Phe Ala Ala Gly Asp Leu Val Asp
 275 280 285
 Arg Thr Tyr Arg Gln Ala Ile Thr Ala Ala Gly Ser Gly Cys Ala Ala
 290 295 300

Ala	Ile	Asp	Ala	Glu	Arg	Trp	Leu	Ala	Glu	His	Ala	Gly	Ser	Lys	Ala
305					310					315					320
Asn	Glu	Thr	Thr	Glu	Glu	Thr	Gly	Asp	Val	Asp	Ser	Thr	Asp	Thr	Thr
				325					330					335	
Asp	Trp	Ser	Thr	Ala	Met	Thr	Asp	Ala	Lys	Asn	Ala	Gly	Val	Thr	Ile
			340					345					350		
Glu	Val	Thr	Asp	Ala	Ser	Phe	Phe	Ala	Asp	Val	Leu	Ser	Ser	Asn	Lys
		355					360					365			
Pro	Val	Leu	Val	Asp	Phe	Trp	Ala	Thr	Trp	Cys	Gly	Pro	Cys	Lys	Met
	370					375					380				
Val	Ala	Pro	Val	Leu	Glu	Glu	Ile	Ala	Ser	Glu	Gln	Arg	Asn	Gln	Leu
385					390					395					400
Thr	Val	Ala	Lys	Leu	Asp	Val	Asp	Thr	Asn	Pro	Glu	Met	Ala	Arg	Glu
				405					410					415	
Phe	Gln	Val	Val	Ser	Ile	Pro	Thr	Met	Ile	Leu	Phe	Gln	Gly	Gly	Gln
			420					425					430		
Pro	Val	Lys	Arg	Ile	Val	Gly	Ala	Lys	Gly	Lys	Ala	Ala	Leu	Leu	Arg
		435					440					445			
Asp	Leu	Ser	Asp	Val	Val	Pro	Asn	Leu	Asn						
	450					455									

<210> 128
 <211> 102
 <212> PRT
 <213> Mycoplasma pneumoniae

<400> 128

Met	Val	Thr	Glu	Ile	Lys	Ser	Leu	Lys	Gln	Leu	Gly	Glu	Leu	Phe	Ala
1				5					10					15	
Ser	Asn	Asn	Lys	Val	Ile	Ile	Asp	Phe	Trp	Ala	Glu	Trp	Cys	Gly	Pro
			20					25					30		
Cys	Lys	Ile	Thr	Gly	Pro	Glu	Phe	Ala	Lys	Ala	Ala	Ser	Glu	Val	Ser
		35					40					45			
Thr	Val	Ala	Phe	Ala	Lys	Val	Asn	Val	Asp	Glu	Gln	Thr	Asp	Ile	Ala
	50					55					60				
Ala	Ala	Tyr	Lys	Ile	Thr	Ser	Leu	Pro	Thr	Ile	Val	Leu	Phe	Glu	Lys
65					70					75					80
Gly	Gln	Glu	Lys	His	Arg	Ala	Ile	Gly	Phe	Met	Pro	Lys	Ala	Lys	Ile
				85					90					95	
Val	Gln	Leu	Val	Ser	Gln										
			100												

<210> 129
 <211> 112
 <212> PRT
 <213> Mycobacterium smegmatis

<400> 129

Met	Ser	Glu	Asp	Ser	Ala	Thr	Val	Ala	Val	Thr	Asp	Asp	Ser	Phe	Ser
1				5					10					15	
Thr	Asp	Val	Leu	Gly	Ser	Ser	Lys	Pro	Val	Leu	Val	Asp	Phe	Trp	Ala
			20					25					30		
Thr	Trp	Cys	Gly	Pro	Cys	Lys	Met	Val	Ala	Pro	Val	Leu	Glu	Glu	Ile
		35					40					45			
Ala	Ala	Glu	Lys	Gly	Asp	Gln	Leu	Thr	Val	Ala	Lys	Ile	Asp	Val	Asp
	50					55					60				
Val	Asp	Ala	Asn	Pro	Ala	Thr	Ala	Arg	Asp	Phe	Gln	Val	Val	Ser	Ile
65					70					75					80
Pro	Thr	Met	Ile	Leu	Phe	Lys	Asp	Gly	Ala	Pro	Val	Lys	Arg	Ile	Val
				85					90					95	
Gly	Ala	Lys	Gly	Lys	Ala	Ala	Leu	Leu	Arg	Glu	Leu	Ser	Asp	Ala	Leu
			100					105					110		

<210> 130

<211> 115
 <212> PRT
 <213> Mycobacterium tuberculosis

<400> 130
 Thr Asp Ser Glu Lys Ser Ala Thr Ile Lys Val Thr Asp Ala Ser Phe
 1 5 10 15
 Ala Thr Asp Val Leu Ser Ser Asn Lys Pro Val Leu Val Asp Phe Trp
 20 25 30
 Ala Thr Trp Cys Gly Pro Cys Lys Met Val Ala Pro Val Leu Glu Glu
 35 40 45
 Ile Ala Thr Glu Arg Ala Thr Asp Leu Thr Val Ala Lys Leu Asp Val
 50 55 60
 Asp Thr Asn Pro Glu Thr Ala Arg Asn Phe Gln Val Val Ser Ile Pro
 65 70 75 80
 Thr Leu Ile Leu Phe Lys Asp Gly Gln Pro Val Lys Arg Ile Val Gly
 85 90 95
 Ala Lys Gly Lys Ala Ala Leu Leu Arg Glu Leu Ser Asp Val Val Pro
 100 105 110
 Asn Leu Asn
 115

<210> 131
 <211> 127
 <212> PRT
 <213> Neurospora crassa

<400> 131
 Met Ser Asp Gly Val Lys His Ile Asn Ser Ala Gln Glu Phe Ala Asn
 1 5 10 15
 Leu Leu Asn Thr Thr Gln Tyr Val Val Ala Asp Phe Tyr Ala Asp Trp
 20 25 30
 Cys Gly Pro Cys Lys Ala Ile Ala Pro Met Tyr Ala Gln Phe Ala Lys
 35 40 45
 Thr Phe Ser Ile Pro Asn Phe Leu Ala Phe Ala Lys Ile Asn Val Asp
 50 55 60
 Ser Val Gln Gln Val Ala Gln His Tyr Arg Val Ser Ala Met Pro Thr
 65 70 75 80
 Phe Leu Phe Phe Lys Asn Gly Lys Gln Val Ala Val Asn Gly Ser Val
 85 90 95
 Met Ile Gln Gly Ala Asp Val Asn Ser Leu Arg Ala Ala Ala Glu Lys
 100 105 110
 Met Gly Arg Leu Ala Lys Glu Lys Ala Ala Ala Ala Gly Ser Ser
 115 120 125

<210> 132
 <211> 106
 <212> PRT
 <213> Penicillium chrysogenum

<400> 132
 Met Gly Val Thr Pro Ile Lys Ser Val Ala Glu Tyr Lys Glu Lys Val
 1 5 10 15
 Thr Asp Ala Thr Gly Pro Val Val Val Asp Phe His Ala Thr Trp Cys
 20 25 30
 Gly Pro Cys Lys Ala Ile Ala Pro Ala Leu Glu Lys Leu Ser Glu Thr
 35 40 45
 His Thr Gly Ile Gln Phe Tyr Lys Val Asp Val Asp Glu Leu Ser Glu
 50 55 60
 Val Ala Ala Ser Asn Gly Val Ser Ala Met Pro Thr Phe His Phe Tyr
 65 70 75 80
 Lys Gly Gly Glu Arg Asn Glu Glu Val Lys Gly Ala Asn Pro Ala Ala
 85 90 95
 Ile Gln Ala Gly Val Lys Ala Ile Leu Glu
 100 105

<210> 133
 <211> 108
 <212> PRT
 <213> *Pseudomonas aeruginosa*

<400> 133
 Met Ser Glu His Ile Val Asn Val Thr Asp Ala Ser Phe Glu Gln Asp
 1 5 10 15
 Val Leu Lys Ala Asp Gly Pro Val Leu Val Asp Tyr Trp Ala Glu Trp
 20 25 30
 Cys Gly Pro Cys Lys Met Ile Ala Pro Val Leu Asp Glu Val Ala Arg
 35 40 45
 Asp Tyr Gln Gly Lys Leu Lys Val Cys Lys Leu Asn Ile Asp Glu Asn
 50 55 60
 Gln Asp Thr Pro Pro Lys Tyr Gly Val Arg Gly Ile Pro Thr Leu Met
 65 70 75 80
 Leu Phe Lys Asp Gly Asn Val Glu Ala Thr Lys Val Gly Ala Leu Ser
 85 90 95
 Lys Ser Gln Leu Ala Ala Phe Leu Asp Ala Asn Ile
 100 105

<210> 134
 <211> 104
 <212> PRT
 <213> *Rhodospirillum rubrum*

<220>
 <221> VARIANT
 <222> 21, 35
 <223> Xaa = Any Amino Acid

<400> 134
 Met Lys Gln Val Ser Asp Ala Ser Phe Glu Glu Asp Val Leu Lys Ala
 1 5 10 15
 Asp Gly Pro Asn Xaa Val Asp Phe Trp Ala Glu Trp Cys Gly Pro Cys
 20 25 30
 Arg Gln Xaa Ala Pro Ala Leu Glu Glu Leu Ala Thr Ala Leu Gly Asp
 35 40 45
 Lys Val Thr Val Ala Lys Ile Asn Ile Asp Glu Asn Pro Gln Thr Pro
 50 55 60
 Ser Lys Tyr Gly Val Arg Gly Ile Pro Thr Leu Met Ile Phe Lys Asp
 65 70 75 80
 Gly Gln Val Ala Ala Thr Lys Ile Gly Ala Leu Pro Lys Thr Lys Leu
 85 90 95
 Phe Glu Trp Val Glu Ala Ser Val
 100

<210> 135
 <211> 105
 <212> PRT
 <213> *Rhodobacter sphaeroides*

<400> 135
 Ser Thr Val Pro Val Thr Asp Ala Thr Phe Asp Thr Glu Val Arg Lys
 1 5 10 15
 Ser Asp Val Pro Val Val Val Asp Phe Trp Ala Glu Trp Cys Gly Pro
 20 25 30
 Cys Arg Gln Ile Gly Pro Ala Leu Glu Glu Leu Ser Lys Glu Tyr Ala
 35 40 45
 Gly Lys Val Lys Ile Val Lys Val Asn Val Asp Glu Asn Pro Glu Ser
 50 55 60
 Pro Ala Met Leu Gly Val Arg Gly Ile Pro Ala Leu Phe Leu Phe Lys
 65 70 75 80
 Asn Gly Gln Val Val Ser Asn Lys Val Gly Ala Ala Pro Lys Ala Ala

85 90 95
 Leu Ala Thr Trp Ile Ala Ser Ala Leu
 100 105

<210> 136
 <211> 130
 <212> PRT
 <213> Rickettsia prowazekii

<400> 136
 Met Ser Cys Tyr Asn Glu Ile Thr Thr Leu Leu Glu Phe Asp Ser Asn
 1 5 10 15
 Asp Ile Asn Thr Thr Gln Arg Ile Asn Met Val Asn Asn Val Thr Asp
 20 25 30
 Ser Ser Phe Lys Asn Glu Val Leu Glu Ser Asp Leu Pro Val Met Val
 35 40 45
 Asp Phe Trp Ala Glu Trp Cys Gly Pro Cys Lys Met Leu Ile Pro Ile
 50 55 60
 Ile Asp Glu Ile Ser Lys Glu Leu Gln Asp Lys Val Lys Val Leu Lys
 65 70 75 80
 Met Asn Ile Asp Glu Asn Pro Lys Thr Pro Ser Glu Tyr Gly Ile Arg
 85 90 95
 Ser Ile Pro Thr Ile Met Leu Phe Lys Asn Gly Glu Gln Lys Asp Thr
 100 105 110
 Lys Ile Gly Leu Gln Gln Lys Asn Ser Leu Leu Asp Trp Ile Asn Lys
 115 120 125
 Ser Ile
 130

<210> 137
 <211> 106
 <212> PRT
 <213> Streptomyces aureofaciens

<400> 137
 Gly Ala Thr Val Lys Val Thr Asn Ala Thr Phe Lys Ser Asp Val Leu
 1 5 10 15
 Glu Ser Asp Lys Pro Val Leu Val His Phe Glu Gly Pro Trp Cys Gly
 20 25 30
 Pro Cys Lys Met Val Ala Pro Val Leu Asp Glu Ile Ala Asn Glu Tyr
 35 40 45
 Glu Gly Lys Val Lys Val Ala Lys Val Asn Thr Asp Glu Asn Pro Gln
 50 55 60
 Leu Ala Ser Gln Tyr Gly Val Arg Ser Ile Pro Thr Arg Leu Met Phe
 65 70 75 80
 Lys Gly Gly Glu Val Ala Ala Asn Met Val Gly Ala Ala Pro Lys Thr
 85 90 95
 Arg Leu Ala Ala Phe Leu Asp Ala Ser Leu
 100 105

<210> 138
 <211> 110
 <212> PRT
 <213> Streptomyces coelicolor

<400> 138
 Met Ala Gly Thr Leu Lys His Val Thr Asp Asp Ser Phe Glu Gln Asp
 1 5 10 15
 Val Leu Lys Asn Asp Lys Pro Val Leu Val Asp Phe Trp Ala Ala Trp
 20 25 30
 Cys Gly Pro Cys Arg Gln Ile Ala Pro Ser Leu Glu Ala Ile Ala Ala
 35 40 45
 Glu Tyr Gly Asp Lys Ile Glu Ile Val Lys Leu Asn Ile Asp Glu Asn
 50 55 60

Pro	Gly	Thr	Ala	Ala	Lys	Tyr	Gly	Val	Met	Ser	Ile	Pro	Thr	Leu	Asn
65					70					75					80
Val	Tyr	Gln	Gly	Gly	Glu	Val	Ala	Lys	Thr	Ile	Val	Gly	Ala	Lys	Pro
			85						90					95	
Lys	Ala	Ala	Ile	Val	Arg	Asp	Leu	Glu	Asp	Phe	Ile	Ala	Asp		
			100					105					110		

<210> 139
 <211> 107
 <212> PRT
 <213> Streptomyces clavuligerus

Met	Ala	Gly	Val	Leu	Lys	Asn	Val	Thr	Asp	Asp	Thr	Phe	Glu	Ala	Asp
1				5					10					15	
Val	Leu	Lys	Ser	Glu	Lys	Pro	Val	Leu	Val	Asp	Phe	Trp	Ala	Glu	Trp
			20					25					30		
Cys	Gly	Pro	Cys	Arg	Gln	Ile	Ala	Pro	Ser	Leu	Glu	Ala	Ile	Thr	Glu
		35					40					45			
His	Gly	Gly	Gln	Ile	Glu	Ile	Val	Lys	Leu	Asn	Ile	Asp	Gln	Asn	Pro
	50					55					60				
Ala	Thr	Ala	Ala	Lys	Tyr	Gly	Val	Met	Ser	Ile	Pro	Thr	Leu	Asn	Val
65					70					75					80
Tyr	Gln	Gly	Gly	Glu	Val	Val	Lys	Thr	Ile	Val	Gly	Ala	Lys	Pro	Lys
				85					90					95	
Ala	Ala	Leu	Leu	Arg	Pro	Gly	Pro	Val	Pro	Arg					
			100					105							

<210> 140
 <211> 106
 <212> PRT
 <213> Synechocystis

Ser	Ala	Thr	Pro	Gln	Val	Ser	Asp	Ala	Ser	Phe	Lys	Glu	Asp	Val	Leu
1				5					10					15	
Asp	Ser	Glu	Leu	Pro	Val	Leu	Val	Asp	Phe	Trp	Ala	Pro	Trp	Cys	Gly
			20					25					30		
Pro	Cys	Arg	Met	Val	Ala	Pro	Val	Val	Asp	Glu	Ile	Ser	Gln	Gln	Tyr
		35					40					45			
Glu	Gly	Lys	Val	Lys	Val	Val	Lys	Leu	Asn	Thr	Asp	Glu	Asn	Pro	Asn
	50					55					60				
Thr	Ala	Ser	Gln	Tyr	Gly	Ile	Arg	Ser	Ile	Pro	Thr	Leu	Met	Ile	Phe
65					70					75					80
Lys	Gly	Gly	Gln	Arg	Val	Asp	Met	Val	Val	Gly	Ala	Val	Pro	Lys	Thr
				85					90					95	
Thr	Leu	Ala	Ser	Thr	Leu	Glu	Lys	Tyr	Leu						
			100					105							

<210> 141
 <211> 109
 <212> PRT
 <213> Synechocystis

Met	Ser	Leu	Leu	Glu	Ile	Thr	Asp	Ala	Glu	Phe	Glu	Gln	Glu	Thr	Gln
1				5					10					15	
Gly	Gln	Thr	Lys	Pro	Val	Leu	Val	Tyr	Phe	Trp	Ala	Ser	Trp	Cys	Gly
			20					25					30		
Pro	Cys	Arg	Leu	Met	Ala	Pro	Ala	Ile	Gln	Ala	Ile	Ala	Lys	Asp	Tyr
		35					40					45			
Gly	Asp	Lys	Leu	Lys	Val	Leu	Lys	Leu	Glu	Val	Asp	Pro	Asn	Pro	Ala
	50					55					60				
Ala	Val	Ala	Gln	Cys	Lys	Val	Glu	Gly	Val	Pro	Ala	Leu	Arg	Leu	Phe

65					70					75					80
Lys	Asn	Asn	Glu	Leu	Val	Met	Thr	His	Glu	Gly	Ala	Ile	Ala	Lys	Pro
				85					90					95	
Lys	Leu	Leu	Glu	Leu	Leu	Lys	Glu	Glu	Leu	Asp	Phe	Ile			
			100					105							

<210> 142
 <211> 108
 <212> PRT
 <213> *Thiobacillus ferrooxidans*

<400> 142															
Met	Ser	Asp	Ala	Ile	Leu	Tyr	Val	Ser	Asp	Asp	Ser	Phe	Glu	Thr	Asp
1				5					10					15	
Val	Leu	Lys	Ser	Ser	Lys	Pro	Val	Leu	Val	Asp	Phe	Trp	Ala	Glu	Trp
			20					25					30		
Cys	Gly	Pro	Cys	Lys	Met	Ile	Ala	Pro	Ile	Leu	Glu	Glu	Ile	Ala	Asp
		35					40					45			
Glu	Tyr	Ala	Asp	Arg	Leu	Arg	Val	Ala	Lys	Phe	Asn	Ile	Asp	Glu	Asn
	50					55					60				
Pro	Asn	Thr	Pro	Pro	Gln	Tyr	Ala	Ile	Arg	Gly	Ile	Pro	Thr	Leu	Leu
65					70					75					80
Leu	Phe	Lys	Ala	Gly	Lys	Leu	Glu	Ala	Thr	Lys	Val	Gly	Ala	Leu	Ser
				85					90					95	
Lys	Ala	Gln	Leu	Thr	Ala	Phe	Leu	Asp	Ser	Gln	Leu				
			100					105							

<210> 143
 <211> 91
 <212> PRT
 <213> *Thiocapsa roseopersicina*

<400> 143															
Met	Ser	Asp	Ser	Ile	Val	His	Val	Thr	Asp	Asp	Ser	Phe	Glu	Asp	Glu
1				5					10					15	
Val	Leu	Lys	Ser	Leu	Glu	Pro	Val	Leu	Val	Asp	Tyr	Trp	Ala	Asp	Trp
			20					25					30		
Cys	Gly	Pro	Cys	Lys	Met	Ile	Ala	Pro	Val	Leu	Asp	Glu	Ile	Ala	Gly
		35					40					45			
Glu	Tyr	Ala	Gly	Arg	Ile	Lys	Val	Ala	Lys	Leu	Asn	Ile	Asp	Glu	Asn
	50					55					60				
Pro	Asn	Thr	Pro	Arg	Arg	Tyr	Gly	Ile	Arg	Gly	Ile	Pro	Thr	Leu	Met
65					70					75					80
Leu	Ser	Arg	Gln	Ser	Glu	Val	Glu	Ala	Thr	Lys					
				85					90						

<210> 144
 <211> 44
 <212> PRT
 <213> *Tissierella creatinophila*

<400> 144															
Met	Ile	Glu	Leu	Asp	Lys	Ser	Asn	Phe	Glu	Glu	Glu	Val	Leu	Lys	Ala
1				5					10					15	
Glu	Gly	Thr	Val	Leu	Val	Asp	Phe	Trp	Ser	Pro	Ser	Cys	Glu	Pro	Cys
			20					25					30		
Lys	Ala	Leu	Met	Pro	His	Val	His	Asp	Phe	Glu	Glu				
		35					40								

<210> 145
 <211> 105
 <212> PRT
 <213> *Treponema pallidum*

<400> 145
 Met Ala Leu Leu Asp Ile Ser Ser Gly Asn Val Arg Lys Thr Ile Glu
 1 5 10 15
 Thr Asn Pro Leu Val Ile Val Asp Phe Trp Ala Pro Trp Cys Gly Ser
 20 25 30
 Cys Lys Met Leu Gly Pro Val Leu Glu Glu Val Glu Ser Glu Val Gly
 35 40 45
 Ser Gly Val Val Ile Gly Lys Leu Asn Val Asp Asp Asp Gln Asp Leu
 50 55 60
 Ala Val Glu Phe Asn Val Ala Ser Ile Pro Thr Leu Ile Val Phe Lys
 65 70 75 80
 Asp Gly Lys Glu Val Asp Arg Ser Ile Gly Phe Val Asp Lys Ser Lys
 85 90 95
 Ile Leu Thr Leu Ile Gln Lys Asn Ala
 100 105

<210> 146
 <211> 104
 <212> PRT
 <213> Bos taurus

<400> 146
 Val Lys Gln Ile Glu Ser Lys Tyr Ala Phe Gln Glu Ala Leu Asn Ser
 1 5 10 15
 Ala Gly Glu Lys Leu Val Val Val Asp Phe Ser Ala Thr Trp Cys Gly
 20 25 30
 Pro Cys Lys Met Ile Lys Pro Phe Phe His Ser Leu Ser Glu Lys Tyr
 35 40 45
 Ser Asn Val Val Phe Leu Glu Val Asp Val Asp Asp Cys Gln Asp Val
 50 55 60
 Ala Ala Glu Cys Glu Val Lys Cys Met Pro Thr Phe Gln Phe Phe Lys
 65 70 75 80
 Lys Gly Gln Lys Val Gly Glu Phe Ser Gly Ala Asn Lys Glu Lys Leu
 85 90 95
 Glu Ala Thr Ile Asn Glu Leu Ile
 100

<210> 147
 <211> 166
 <212> PRT
 <213> Bos taurus

<400> 147
 Met Ala Gln Arg Leu Leu Leu Arg Arg Phe Leu Thr Ser Ile Ile Ser
 1 5 10 15
 Gly Lys Pro Ser Gln Ser Arg Trp Ala Pro Val Ala Ser Arg Ala Leu
 20 25 30
 Lys Thr Pro Gln Tyr Ser Pro Gly Tyr Leu Thr Val Thr Pro Ser Gln
 35 40 45
 Ala Arg Ser Ile Tyr Thr Thr Arg Val Cys Ser Thr Thr Phe Asn Ile
 50 55 60
 Gln Asp Gly Pro Asp Phe Gln Asp Arg Val Val Asn Ser Glu Thr Pro
 65 70 75 80
 Val Val Val Asp Phe His Ala Gln Trp Cys Gly Pro Cys Lys Ile Leu
 85 90 95
 Gly Pro Arg Leu Glu Lys Val Val Ala Lys Gln His Gly Lys Val Val
 100 105 110
 Met Ala Lys Val Asp Ile Asp Asp His Thr Asp Leu Ala Leu Glu Tyr
 115 120 125
 Glu Val Ser Ala Val Pro Thr Val Leu Ala Met Lys Asn Gly Asp Val
 130 135 140
 Val Asp Lys Phe Val Gly Ile Lys Asp Glu Asp Gln Leu Glu Ala Phe
 145 150 155 160
 Leu Lys Lys Leu Ile Gly
 165

<210> 148
 <211> 115
 <212> PRT
 <213> *Caenorhabditis elegans*

<400> 148
 Met Leu Lys Arg Cys Asn Phe Lys Asn Gln Val Lys Tyr Phe Gln Ser
 1 5 10 15
 Asp Phe Glu Gln Leu Ile Arg Gln His Pro Glu Lys Ile Ile Ile Leu
 20 25 30
 Asp Phe Tyr Ala Thr Trp Cys Gly Pro Cys Lys Ala Ile Ala Pro Leu
 35 40 45
 Tyr Lys Glu Leu Ala Thr Thr His Lys Gly Ile Ile Phe Cys Lys Val
 50 55 60
 Asp Val Asp Glu Ala Glu Asp Leu Cys Ser Lys Tyr Asp Val Lys Met
 65 70 75 80
 Met Pro Thr Phe Ile Phe Thr Lys Asn Gly Asp Ala Ile Glu Ala Leu
 85 90 95
 Glu Gly Cys Val Glu Asp Glu Leu Arg Gln Lys Val Leu Glu His Val
 100 105 110
 Ser Ala Gln
 115

<210> 149
 <211> 20
 <212> PRT
 <213> *Canis familiaris*

<400> 149
 Val Lys Gln Ile Glu Phe Lys Tyr Ala Phe Gln Glu Ala Leu Asn Ser
 1 5 10 15
 Ala Gly Asp Lys
 20

<210> 150
 <211> 104
 <212> PRT
 <213> *Gallus gallus*

<400> 150
 Val Lys Ser Val Gly Asn Leu Ala Asp Phe Glu Ala Glu Leu Lys Ala
 1 5 10 15
 Ala Gly Glu Lys Leu Val Val Val Asp Phe Ser Ala Thr Trp Cys Gly
 20 25 30
 Pro Cys Lys Met Ile Lys Pro Phe Phe His Ser Leu Cys Asp Lys Phe
 35 40 45
 Gly Asp Val Val Phe Ile Glu Ile Asp Val Asp Asp Ala Gln Asp Val
 50 55 60
 Ala Thr His Cys Asp Val Lys Cys Met Pro Thr Phe Gln Phe Tyr Lys
 65 70 75 80
 Asn Gly Lys Lys Val Gln Glu Phe Ser Gly Ala Asn Lys Glu Lys Leu
 85 90 95
 Glu Glu Thr Ile Lys Ser Leu Val
 100

<210> 151
 <211> 107
 <212> PRT
 <213> *Drosophila melanogaster*

<400> 151
 Met Ala Ser Val Arg Thr Met Asn Asp Tyr His Lys Arg Ile Glu Ala
 1 5 10 15

Ala	Asp	Asp	Lys	Leu	Ile	Val	Leu	Asp	Phe	Tyr	Ala	Thr	Trp	Cys	Gly
			20					25					30		
Pro	Cys	Lys	Glu	Met	Glu	Ser	Thr	Val	Lys	Ser	Leu	Ala	Arg	Lys	Tyr
		35					40					45			
Ser	Ser	Lys	Ala	Val	Val	Leu	Lys	Ile	Asp	Val	Asp	Lys	Phe	Glu	Glu
	50					55					60				
Leu	Thr	Glu	Arg	Tyr	Lys	Val	Arg	Ser	Met	Pro	Thr	Phe	Val	Phe	Leu
65					70					75					80
Arg	Gln	Asn	Arg	Arg	Leu	Ala	Ser	Phe	Ala	Gly	Ala	Asp	Glu	His	Lys
			85						90					95	
Leu	Thr	Asn	Met	Met	Ala	Lys	Leu	Val	Lys	Ala					
			100					105							

<210> 152
 <211> 104
 <212> PRT
 <213> Homo sapien

<400> 152															
Val	Lys	Gln	Ile	Glu	Ser	Lys	Thr	Ala	Phe	Gln	Glu	Ala	Leu	Asp	Ala
1				5					10					15	
Ala	Gly	Asp	Lys	Leu	Val	Val	Val	Asp	Phe	Ser	Ala	Thr	Trp	Cys	Gly
			20					25					30		
Pro	Cys	Lys	Met	Ile	Lys	Pro	Phe	Phe	His	Ser	Leu	Ser	Glu	Lys	Tyr
		35					40					45			
Ser	Asn	Val	Ile	Phe	Leu	Glu	Val	Asp	Val	Asp	Asp	Cys	Gln	Asp	Val
	50					55					60				
Ala	Ser	Glu	Cys	Glu	Val	Lys	Cys	Met	Pro	Thr	Phe	Gln	Phe	Phe	Lys
65					70					75					80
Lys	Gly	Gln	Lys	Val	Gly	Glu	Phe	Ser	Gly	Ala	Asn	Lys	Glu	Lys	Leu
				85					90					95	
Glu	Ala	Thr	Ile	Asn	Glu	Leu	Val								
			100												

<210> 153
 <211> 166
 <212> PRT
 <213> Homo sapien

<400> 153															
Met	Ala	Gln	Arg	Leu	Leu	Leu	Arg	Arg	Phe	Leu	Ala	Ser	Val	Ile	Ser
1				5					10					15	
Arg	Lys	Pro	Ser	Gln	Gly	Gln	Trp	Pro	Pro	Leu	Thr	Ser	Lys	Ala	Leu
			20					25					30		
Gln	Thr	Pro	Gln	Cys	Ser	Pro	Gly	Gly	Leu	Thr	Val	Thr	Pro	Asn	Pro
		35					40					45			
Ala	Arg	Thr	Ile	Tyr	Thr	Thr	Arg	Ile	Ser	Leu	Thr	Thr	Phe	Asn	Ile
	50					55					60				
Gln	Asp	Gly	Pro	Asp	Phe	Gln	Asp	Arg	Val	Val	Asn	Ser	Glu	Thr	Pro
65					70					75					80
Val	Val	Val	Asp	Phe	His	Ala	Gln	Trp	Cys	Gly	Pro	Cys	Lys	Ile	Leu
				85					90					95	
Gly	Pro	Arg	Leu	Glu	Lys	Met	Val	Ala	Lys	Gln	His	Gly	Lys	Val	Val
			100					105					110		
Met	Ala	Lys	Val	Asp	Ile	Asp	Asp	His	Thr	Asp	Leu	Ala	Ile	Glu	Tyr
		115					120					125			
Glu	Val	Ser	Ala	Val	Pro	Thr	Val	Leu	Ala	Met	Lys	Asn	Gly	Asp	Val
	130					135						140			
Val	Asp	Lys	Phe	Val	Gly	Ile	Lys	Asp	Glu	Asp	Gln	Leu	Glu	Ala	Phe
145					150					155					160
Leu	Lys	Lys	Leu	Ile	Gly										
				165											

<210> 154

<211> 104
 <212> PRT
 <213> Macaca mulatta

<400> 154
 Val Lys Gln Ile Glu Ser Lys Ala Ala Phe Gln Glu Ala Leu Asp Asp
 1 5 10 15
 Ala Gly Asp Lys Leu Val Val Val Asp Phe Ser Ala Thr Trp Cys Gly
 20 25 30
 Pro Cys Lys Met Ile Lys Pro Phe Phe His Ser Leu Ser Glu Lys Tyr
 35 40 45
 Ser Asn Val Val Phe Leu Glu Val Asp Val Asp Asp Cys Gln Asp Val
 50 55 60
 Ala Ser Glu Cys Glu Val Lys Cys Met Pro Thr Phe Gln Phe Phe Lys
 65 70 75 80
 Lys Gly Gln Lys Val Gly Glu Phe Ser Gly Ala Asn Lys Glu Lys Leu
 85 90 95
 Glu Ala Thr Ile Asn Glu Leu Val
 100

<210> 155
 <211> 104
 <212> PRT
 <213> Mus musculus

<400> 155
 Val Lys Leu Ile Glu Ser Lys Glu Ala Phe Gln Glu Ala Leu Ala Ala
 1 5 10 15
 Ala Gly Asp Lys Leu Val Val Val Asp Phe Ser Ala Thr Trp Cys Gly
 20 25 30
 Pro Cys Lys Met Ile Lys Pro Phe Phe His Ser Leu Cys Asp Lys Tyr
 35 40 45
 Ser Asn Val Val Phe Leu Glu Val Asp Val Asp Asp Cys Gln Asp Val
 50 55 60
 Ala Ala Asp Cys Glu Val Lys Cys Met Pro Thr Phe Gln Phe Tyr Lys
 65 70 75 80
 Lys Gly Gln Lys Val Gly Glu Phe Ser Gly Ala Asn Lys Glu Lys Leu
 85 90 95
 Glu Ala Ser Ile Thr Glu Tyr Ala
 100

<210> 156
 <211> 166
 <212> PRT
 <213> Mus musculus

<400> 156
 Met Ala Gln Arg Leu Leu Leu Gly Arg Phe Leu Thr Ser Val Ile Ser
 1 5 10 15
 Arg Lys Pro Pro Gln Gly Val Trp Ala Ser Leu Thr Ser Lys Thr Leu
 20 25 30
 Gln Thr Pro Gln Tyr Asn Ala Gly Gly Leu Thr Val Met Pro Ser Pro
 35 40 45
 Ala Arg Thr Val His Thr Thr Arg Val Cys Leu Thr Thr Phe Asn Val
 50 55 60
 Gln Asp Gly Pro Asp Phe Gln Asp Arg Val Val Asn Ser Glu Thr Pro
 65 70 75 80
 Val Val Val Asp Phe His Ala Gln Trp Cys Gly Pro Cys Lys Ile Leu
 85 90 95
 Gly Pro Arg Leu Glu Lys Met Val Ala Lys Gln His Gly Lys Val Val
 100 105 110
 Met Ala Lys Val Asp Ile Asp Asp His Thr Asp Leu Ala Ile Glu Tyr
 115 120 125
 Glu Val Ser Ala Val Pro Thr Val Leu Ala Ile Lys Asn Gly Asp Val
 130 135 140

Val	Asp	Lys	Phe	Val	Gly	Ile	Lys	Asp	Glu	Asp	Gln	Leu	Glu	Ala	Phe
145					150					155					160
Leu	Lys	Lys	Leu	Ile	Gly										
				165											

<210> 157
 <211> 33
 <212> PRT
 <213> Sus scrofa

<400> 157

Val	Lys	Gln	Ile	Glu	Ser	Lys	Tyr	Ala	Phe	Gln	Glu	Ala	Leu	Asn	Ser
1				5					10					15	
Ala	Gly	Glu	Lys	Leu	Val	Val	Val	Asp	Phe	Ser	Ala	Thr	Trp	Cys	Gly
			20					25					30		

 Pro

<210> 158
 <211> 104
 <212> PRT
 <213> Oryctolagus cuniculus

<400> 158

Val	Lys	Gln	Ile	Glu	Ser	Lys	Ser	Ala	Phe	Gln	Glu	Val	Leu	Asp	Ser
1				5					10					15	
Ala	Gly	Asp	Lys	Leu	Val	Val	Val	Asp	Phe	Ser	Ala	Thr	Trp	Cys	Gly
			20					25					30		
Pro	Cys	Lys	Met	Ile	Lys	Pro	Phe	Phe	His	Ala	Leu	Ser	Glu	Lys	Phe
		35					40					45			
Asn	Asn	Val	Val	Phe	Ile	Glu	Val	Asp	Val	Asp	Asp	Cys	Lys	Asp	Ile
	50				55					60					
Ala	Ala	Glu	Cys	Glu	Val	Lys	Cys	Met	Pro	Thr	Phe	Gln	Phe	Phe	Lys
65					70					75					80
Lys	Gly	Gln	Lys	Val	Gly	Glu	Phe	Ser	Gly	Ala	Asn	Lys	Glu	Lys	Leu
				85					90					95	

 Glu Ala Thr Ile Asn Glu Leu Leu
 100

<210> 159
 <211> 104
 <212> PRT
 <213> Rattus norvegicus

<400> 159

Val	Lys	Leu	Ile	Glu	Ser	Lys	Glu	Ala	Phe	Gln	Glu	Ala	Leu	Ala	Ala
1				5					10					15	
Ala	Gly	Asp	Lys	Leu	Val	Val	Val	Asp	Phe	Ser	Ala	Thr	Trp	Cys	Gly
			20					25					30		
Pro	Cys	Lys	Met	Ile	Lys	Pro	Phe	Phe	His	Ser	Leu	Cys	Asp	Lys	Tyr
		35					40					45			
Ser	Asn	Val	Val	Phe	Leu	Glu	Val	Asp	Val	Asp	Asp	Cys	Gln	Asp	Val
	50				55					60					
Ala	Ala	Asp	Cys	Glu	Val	Lys	Cys	Met	Pro	Thr	Phe	Gln	Phe	Tyr	Lys
65					70					75					80
Lys	Gly	Gln	Lys	Val	Gly	Glu	Phe	Ser	Gly	Ala	Asn	Lys	Glu	Lys	Leu
				85					90					95	

 Glu Ala Thr Ile Thr Glu Phe Ala
 100

<210> 160
 <211> 166
 <212> PRT

<213> Rattus norvegicus

<400> 160

Met	Ala	Gln	Arg	Leu	Leu	Leu	Arg	Arg	Phe	Leu	Thr	Ser	Val	Ile	Ser	
1				5					10					15		
Arg	Lys	Pro	Pro	Gln	Gly	Val	Trp	Ala	Ser	Leu	Thr	Ser	Thr	Ser	Leu	
			20					25					30			
Gln	Thr	Pro	Pro	Tyr	Asn	Ala	Gly	Gly	Leu	Thr	Gly	Thr	Pro	Ser	Pro	
		35					40					45				
Ala	Arg	Thr	Phe	His	Thr	Thr	Arg	Val	Cys	Ser	Thr	Thr	Phe	Asn	Val	
50					55						60					
Gln	Asp	Gly	Pro	Asp	Phe	Gln	Asp	Arg	Val	Val	Asn	Ser	Glu	Thr	Pro	
65				70						75					80	
Val	Val	Val	Asp	Phe	His	Ala	Gln	Trp	Cys	Gly	Pro	Cys	Lys	Ile	Leu	
			85					90						95		
Gly	Pro	Arg	Leu	Glu	Lys	Met	Val	Ala	Lys	Gln	His	Gly	Lys	Val	Val	
			100					105					110			
Met	Ala	Lys	Val	Asp	Ile	Asp	Asp	His	Thr	Asp	Leu	Ala	Ile	Glu	Tyr	
		115				120						125				
Glu	Val	Ser	Ala	Val	Pro	Thr	Val	Leu	Ala	Ile	Lys	Asn	Gly	Asp	Val	
	130					135					140					
Val	Asp	Lys	Phe	Val	Gly	Ile	Lys	Asp	Glu	Asp	Gln	Leu	Glu	Ala	Phe	
145					150					155					160	
Leu	Lys	Lys	Leu	Ile	Gly											
				165												

<210> 161

<211> 104

<212> PRT

<213> Ovis aries

<400> 161

Val	Lys	Gln	Ile	Glu	Ser	Lys	Tyr	Ala	Phe	Gln	Glu	Ala	Leu	Asn	Ser	
1			5						10					15		
Ala	Gly	Glu	Lys	Leu	Val	Val	Val	Asp	Phe	Ser	Ala	Thr	Trp	Cys	Gly	
			20					25					30			
Pro	Cys	Lys	Met	Ile	Lys	Pro	Phe	Phe	His	Ser	Leu	Ser	Glu	Lys	Tyr	
		35					40					45				
Ser	Asn	Val	Val	Phe	Leu	Glu	Val	Asp	Val	Asp	Asp	Cys	Gln	Asp	Val	
50						55					60					
Ala	Ala	Glu	Cys	Glu	Val	Lys	Cys	Met	Pro	Thr	Phe	Gln	Phe	Phe	Lys	
65				70						75					80	
Lys	Gly	Gln	Lys	Val	Ser	Glu	Phe	Ser	Gly	Ala	Asn	Lys	Glu	Lys	Leu	
			85						90					95		
Glu	Ala	Thr	Ile	Asn	Glu	Leu	Ile									
			100													

<210> 162

<211> 261

<212> PRT

<213> Arabidopsis thaliana

<400> 162

Met	Ala	Arg	Leu	Val	Phe	Ser	Leu	Asn	Leu	Pro	Ser	Ser	His	Gly	Phe	
1			5						10					15		
Asn	Leu	Ser	Pro	Arg	Asn	Leu	Gln	Ser	Phe	Phe	Val	Thr	Gln	Thr	Gly	
			20					25					30			
Ala	Pro	Arg	Phe	Arg	Ala	Val	Arg	Cys	Lys	Pro	Asn	Pro	Glu	Ser	Ser	
		35					40					45				
Glu	Thr	Lys	Gln	Glu	Lys	Leu	Val	Ile	Asp	Asn	Gly	Glu	Thr	Ser	Ser	
50						55					60					
Ala	Ser	Lys	Glu	Val	Glu	Ser	Ser	Ser	Ser	Val	Ala	Asp	Ser	Ser	Ser	
65				70						75					80	
Ser	Ser	Ser	Ser	Gly	Phe	Pro	Glu	Ser	Pro	Asn	Lys	Asp	Ile	Asn	Arg	
			85						90					95		

Arg	Val	Ala	Ala	Val	Thr	Val	Ile	Ala	Ala	Leu	Ser	Leu	Phe	Val	Ser	
		100						105					110			
Thr	Arg	Leu	Asp	Phe	Gly	Ile	Ser	Leu	Lys	Asp	Leu	Thr	Ala	Ser	Ala	
		115					120					125				
Leu	Pro	Tyr	Glu	Glu	Ala	Leu	Ser	Asn	Gly	Lys	Pro	Thr	Val	Val	Glu	
		130				135					140					
Phe	Tyr	Ala	Asp	Trp	Cys	Glu	Val	Cys	Arg	Glu	Leu	Ala	Pro	Asp	Val	
145					150					155					160	
Tyr	Lys	Ile	Glu	Gln	Gln	Tyr	Lys	Asp	Lys	Val	Asn	Phe	Val	Met	Leu	
			165					170						175		
Asn	Val	Asp	Asn	Thr	Lys	Trp	Glu	Gln	Glu	Leu	Asp	Glu	Phe	Gly	Val	
		180						185					190			
Glu	Gly	Ile	Pro	His	Phe	Ala	Phe	Leu	Asp	Arg	Glu	Gly	Asn	Glu	Glu	
		195				200						205				
Gly	Asn	Val	Val	Gly	Arg	Leu	Pro	Arg	Gln	Tyr	Leu	Val	Glu	Asn	Val	
	210					215					220					
Asn	Ala	Leu	Ala	Ala	Gly	Lys	Gln	Ser	Ile	Pro	Tyr	Ala	Arg	Ala	Val	
225					230					235					240	
Gly	Gln	Tyr	Ser	Ser	Ser	Glu	Ser	Arg	Lys	Val	His	Gln	Val	Thr	Asp	
			245					250						255		
Pro	Leu	Ser	His	Gly												
			260													

<210> 163
 <211> 140
 <212> PRT
 <213> Arabidopsis thaliana

<400> 163																
Met	Gly	Ser	Cys	Val	Ser	Lys	Gly	Lys	Gly	Asp	Asp	Asp	Ser	Val	His	
1				5					10					15		
Asn	Val	Glu	Phe	Ser	Gly	Gly	Asn	Val	His	Leu	Ile	Thr	Thr	Lys	Glu	
		20					25					30				
Ser	Trp	Asp	Asp	Lys	Leu	Ala	Glu	Ala	Asp	Arg	Asp	Gly	Lys	Ile	Val	
		35				40						45				
Val	Ala	Asn	Phe	Ser	Ala	Thr	Trp	Cys	Gly	Pro	Cys	Lys	Ile	Val	Ala	
	50				55					60						
Pro	Phe	Phe	Ile	Glu	Leu	Ser	Glu	Lys	His	Ser	Ser	Leu	Met	Phe	Leu	
65				70					75						80	
Leu	Val	Asp	Val	Asp	Glu	Leu	Ser	Asp	Phe	Ser	Ser	Ser	Trp	Asp	Ile	
			85					90					95			
Lys	Ala	Thr	Pro	Thr	Phe	Phe	Phe	Leu	Lys	Asn	Gly	Gln	Gln	Ile	Gly	
		100					105					110				
Lys	Leu	Val	Gly	Ala	Asn	Lys	Pro	Glu	Leu	Gln	Lys	Lys	Val	Thr	Ser	
		115				120					125					
Ile	Ile	Asp	Ser	Val	Pro	Glu	Ser	Pro	Gln	Arg	Pro					
	130					135					140					

<210> 164
 <211> 186
 <212> PRT
 <213> Arabidopsis thaliana

<400> 164																
Met	Ser	Glu	Ile	Val	Asn	Leu	Ser	Ser	Ser	Leu	Arg	Ser	Leu	Asn	Pro	
1				5					10					15		
Lys	Ile	Ser	Pro	Leu	Val	Pro	Pro	Tyr	Arg	Gln	Thr	Ser	Ser	Ser	Phe	
		20					25					30				
Ser	Arg	Pro	Arg	Asn	Phe	Lys	Tyr	His	Ser	Phe	Thr	Asp	Lys	Ile	Cys	
		35				40						45				
Leu	Ala	Ala	Glu	Arg	Ile	Arg	Ala	Val	Asp	Ile	Gln	Lys	Gln	Asp	Gly	
	50				55					60						
Gly	Leu	Gln	Glu	Leu	Asp	Asp	Ser	Pro	Val	Ser	Val	Glu	Leu	Gly	Pro	
65				70					75					80		
Ile	Cys	Gly	Glu	Ser	His	Phe	Asp	Gln	Val	Met	Glu	Asp	Ala	Gln	Lys	

Leu	Gly	Glu	Ser	85	Val	Val	Ile	Val	Trp	90	Met	Ala	Ala	Trp	Cys	95	Arg	Lys
			100						105						110			
Cys	Ile	Tyr	Leu	Lys	Pro	Lys	Leu	Glu	Lys	Leu	Ala	Ala	Ala	Glu	Phe	Tyr		
		115						120						125				
Pro	Arg	Leu	Arg	Phe	Tyr	His	Val	Asp	Val	Asn	Ala	Val	Pro	Tyr	Arg			
	130					135					140							
Leu	Val	Ser	Arg	Ala	Gly	Val	Thr	Leu	Trp	Arg	Asp	Gly	Gln	Lys	Gln			
145					150					155					160			
Ala	Glu	Val	Ile	Gly	Gly	His	Lys	Ala	His	Phe	Val	Val	Asn	Glu	Val			
			165						170					175				
Arg	Glu	Met	Ile	Glu	Asn	Asp	Ser	Ile	Thr									
			180					185										

<210> 165
 <211> 207
 <212> PRT
 <213> Arabidopsis thaliana

<400> 165																		
Met	Glu	Asn	Met	Ser	Asn	Leu	Thr	Ser	Lys	Phe	Leu	Leu	Asn	Pro	Leu			
1				5				10						15				
Asn	Val	His	Lys	His	Cys	Ala	Val	Ser	Asp	Glu	Asn	Gly	Asp	Arg	Lys			
			20					25					30					
Ser	His	Val	Leu	Lys	Gln	Val	Cys	Ser	Cys	Ile	Cys	Cys	Cys	Asn	Arg			
			35				40					45						
Arg	Asn	Lys	Thr	Gln	Ala	Arg	Ser	Gln	Lys	Gly	Ser	Tyr	Phe	Ile	Lys			
	50					55					60							
Gly	Lys	Val	His	Pro	Val	Ser	Arg	Met	Glu	Lys	Trp	Glu	Glu	Lys	Ile			
65					70					75					80			
Thr	Glu	Ala	Asn	Ser	His	Gly	Lys	Ile	Ile	Ala	Arg	His	Asp	Leu	Ile			
			85					90						95				
Leu	Cys	Asn	Met	Glu	Gln	Leu	Val	Val	Asn	Phe	Lys	Ala	Ser	Trp	Cys			
			100					105					110					
Leu	Pro	Ser	Lys	Thr	Ile	Leu	Pro	Ile	Tyr	Gln	Glu	Leu	Ala	Ser	Thr			
		115					120					125						
Tyr	Thr	Ser	Met	Ile	Phe	Val	Thr	Ile	Asp	Val	Glu	Glu	Leu	Ala	Ile			
	130					135					140							
Ser	Lys	Leu	Ser	Asp	Leu	Gly	Val	Lys	Ile	Cys	Leu	Ile	Gln	Glu	Phe			
145					150					155					160			
Ser	His	Glu	Trp	Asn	Val	Asp	Ala	Thr	Pro	Thr	Val	Val	Phe	Leu	Lys			
			165					170						175				
Asp	Gly	Arg	Gln	Met	Asp	Lys	Leu	Val	Gly	Gly	Asp	Ala	Ala	Glu	Leu			
			180					185					190					
Gln	Lys	Lys	Thr	Ala	Ala	Ala	Ala	Asn	Leu	Leu	Leu	Arg	Gln	Ser				
		195					200					205						

<210> 166
 <211> 175
 <212> PRT
 <213> Arabidopsis thaliana

<400> 166																		
Met	Leu	Ile	Pro	His	Ala	Val	Ser	Phe	Ala	Phe	Thr	Tyr	Leu	Arg	Asn			
1				5				10						15				
Ser	Ala	Asn	Pro	Asp	Gln	Asn	Arg	Glu	Val	Ile	Ser	Ile	His	Ser	Thr			
			20					25					30					
Ser	Glu	Leu	Glu	Ala	Lys	Thr	Lys	Ala	Ala	Lys	Lys	Ala	Ser	Arg	Leu			
		35					40					45						
Leu	Ile	Leu	Tyr	Phe	Thr	Ala	Thr	Trp	Cys	Gly	Pro	Cys	Arg	Tyr	Met			
	50					55					60							
Ser	Pro	Leu	Tyr	Ser	Asn	Leu	Ala	Thr	Gln	His	Ser	Arg	Val	Val	Phe			
65					70					75					80			
Leu	Lys	Val	Asp	Ile	Asp	Lys	Ala	Asn	Asp	Val	Ala	Ala	Ser	Trp	Asn			
				85				90						95				

Ile	Ser	Ser	Val	Pro	Thr	Phe	Cys	Phe	Ile	Arg	Asp	Gly	Lys	Glu	Val
			100					105					110		
Asp	Lys	Val	Val	Gly	Ala	Asp	Lys	Gly	Ser	Leu	Glu	Gln	Lys	Ile	Ala
		115					120					125			
Gln	His	Ser	Ser	Ser	Lys	Ala	Arg	Tyr	Ile	Pro	Val	Phe	Ile	Lys	Tyr
	130					135					140				
His	Ser	Asp	Leu	Leu	Leu	Leu	Val	Asn	Glu	Glu	Thr	Pro	Thr	Ser	Asn
145					150					155					160
Gln	Lys	Leu	Lys	Thr	Lys	Thr	Gly	Asp	Trp	Phe	His	Ile	Asn	Leu	
				165					170					175	

<210> 167
 <211> 132
 <212> PRT
 <213> Arabidopsis thaliana

<400> 167

Met	Arg	Lys	Gln	Glu	Ser	Glu	Gly	Ala	Asn	Leu	Glu	Phe	Glu	Ser	Lys
1				5					10					15	
Ser	Asn	Asp	Asn	Gly	Asn	Val	Lys	Ile	Ala	Pro	Asn	Asp	Gln	Ser	Phe
			20				25						30		
Leu	Thr	Ile	Leu	Asp	Asp	Ile	Lys	Ser	Ser	Lys	Ser	Pro	Ala	Val	Ile
		35					40					45			
Asn	Tyr	Gly	Ala	Ser	Trp	Tyr	Thr	Leu	Phe	Ser	Val	Phe	Thr	Ile	Thr
	50					55					60				
Leu	Phe	Met	Leu	Ile	Lys	Cys	Ser	Met	Lys	Cys	Leu	Asn	Glu	Asn	Gly
65					70					75					80
Phe	Val	Leu	Lys	Leu	Ser	Asp	Ile	Asp	Glu	Cys	Pro	Glu	Thr	Thr	Arg
				85					90					95	
His	Ile	Arg	Tyr	Thr	Pro	Thr	Phe	Gln	Phe	Tyr	Arg	Asp	Gly	Glu	Lys
			100					105					110		
Val	Asp	Glu	Met	Phe	Gly	Ala	Gly	Glu	Gln	Arg	Leu	His	Asp	Arg	Leu
		115					120					125			
Trp	Leu	His	Ser												
															130

<210> 168
 <211> 151
 <212> PRT
 <213> Arabidopsis thaliana

<400> 168

Met	Ala	Ser	Ile	Ser	Leu	Ser	Ser	Ser	Thr	Val	Pro	Ser	Leu	Asn	Ser
1				5					10					15	
Lys	Glu	Ser	Ser	Gly	Val	Ser	Ala	Phe	Ala	Ser	Arg	Ser	Ile	Ser	Ala
			20					25					30		
Val	Lys	Phe	Gln	Phe	Pro	Val	Arg	Arg	Ile	Glu	Ala	Lys	Lys	Gln	Thr
		35					40					45			
Phe	Asp	Ser	Phe	Glu	Asp	Leu	Leu	Val	Asn	Ser	Asp	Lys	Pro	Val	Leu
	50					55					60				
Val	Asp	Tyr	Tyr	Ala	Thr	Trp	Cys	Gly	Pro	Cys	Gln	Phe	Met	Val	Pro
65					70					75					80
Ile	Leu	Asn	Glu	Val	Ser	Glu	Thr	Leu	Lys	Asp	Lys	Ile	Gln	Val	Val
				85					90					95	
Lys	Ile	Asp	Thr	Glu	Lys	Tyr	Pro	Ser	Ile	Ala	Asn	Lys	Tyr	Lys	Ile
			100					105					110		
Glu	Ala	Leu	Pro	Thr	Phe	Ile	Leu	Phe	Lys	Asp	Gly	Glu	Pro	Cys	Asp
		115					120					125			
Arg	Phe	Glu	Gly	Ala	Leu	Thr	Ala	Lys	Gln	Leu	Ile	Gln	Arg	Ile	Glu
	130					135						140			
Asp	Ser	Leu	Lys	Val	Lys	Pro									
145					150										

<210> 169

<211> 236
 <212> PRT
 <213> Arabidopsis thaliana

<400> 169
 Met Ala Gly Val Val Arg Leu Thr Thr Thr Ser Val Gln Ala Ile Arg
 1 5 10 15
 Val Ser Ser Ser Phe Ser Ser Phe Ala Thr Ala Leu Asn Pro Leu Gln
 20 25 30
 Pro Cys Leu Pro Pro Asn Ser Asn Leu Asn Ser Asp Lys Arg Leu Arg
 35 40 45
 Leu Leu Ser Ser Ser Pro Ser Cys Ser Ser Ser His Tyr His Pro Ser
 50 55 60
 Ser Gly Leu Gly Ser His Leu Pro Leu Arg Arg Pro Lys Ser Gln Val
 65 70 75 80
 Val Arg Val Lys Val Asp Glu Asn Val Ala Glu Thr Glu Pro Pro Lys
 85 90 95
 Trp Trp Glu Arg Asn Ala Pro Asn Met Val Asp Ile His Ser Thr Glu
 100 105 110
 Glu Phe Leu Ser Ala Leu Ser Gly Ala Gly Glu Arg Leu Val Ile Val
 115 120 125
 Glu Phe Tyr Gly Thr Trp Cys Ala Ser Cys Arg Ala Leu Phe Pro Lys
 130 135 140
 Leu Cys Lys Thr Ala Val Glu His Pro Asp Ile Val Phe Leu Lys Val
 145 150 155 160
 Asn Phe Asp Glu Asn Lys Pro Met Cys Lys Ser Leu Asn Val Arg Val
 165 170 175
 Leu Pro Phe Phe His Phe Tyr Arg Gly Ala Asp Gly Gln Leu Glu Ser
 180 185 190
 Phe Ser Cys Ser Leu Ala Lys Val Lys Lys Ala Ile Ser Val Ser Pro
 195 200 205
 Phe Pro Gln Leu Glu Leu Gly Ile Thr Leu Gln Thr Lys Arg Thr Thr
 210 215 220
 Ser Leu Phe Phe Phe Asp Arg Ile Tyr Gln Ile Leu
 225 230 235

<210> 170
 <211> 131
 <212> PRT
 <213> Hordeum bulbosum

<400> 170
 Met Gly Gly Cys Val Gly Lys Asp Arg Ser Ile Val Glu Asp Lys Leu
 1 5 10 15
 Asp Phe Lys Gly Gly Asn Val His Val Ile Thr Thr Lys Glu Asp Trp
 20 25 30
 Asp Gln Lys Val Ala Glu Ala Asn Lys Asp Gly Lys Ile Val Val Ala
 35 40 45
 Asn Phe Ser Ala Ser Trp Cys Gly Pro Cys Arg Val Ile Ala Pro Val
 50 55 60
 Tyr Ala Glu Met Ser Lys Thr Tyr Pro Gln Leu Met Phe Leu Thr Ile
 65 70 75 80
 Asp Val Asp Asp Leu Met Asp Phe Gly Ser Thr Trp Asp Ile Arg Ala
 85 90 95
 Thr Pro Thr Phe Phe Phe Leu Lys Asn Gly Gln Gln Ile Asp Lys Leu
 100 105 110
 Val Gly Ala Asn Lys Pro Glu Leu Glu Lys Lys Val Gln Ala Leu Gly
 115 120 125
 Asp Gly Ser
 130

<210> 171
 <211> 131
 <212> PRT
 <213> Lolium perenne

<400> 171
 Met Gly Gly Cys Val Gly Lys Asp Arg Ser Ile Val Glu Asp Lys Leu
 1 5 10 15
 Asp Phe Lys Gly Gly Asn Val His Val Ile Thr Thr Lys Glu Asp Trp
 20 25 30
 Asp Gln Lys Val Ala Glu Ala Asn Lys Asp Gly Lys Ile Val Val Ala
 35 40 45
 Asn Phe Ser Ala Ser Trp Cys Gly Pro Cys Arg Val Ile Ala Pro Val
 50 55 60
 Tyr Ala Glu Met Ser Lys Thr Tyr Pro Gln Leu Met Phe Leu Thr Ile
 65 70 75 80
 Asp Val Asp Asp Leu Met Asp Phe Ser Ser Thr Trp Asp Ile Arg Ala
 85 90 95
 Thr Pro Thr Phe Phe Phe Leu Lys Asn Gly Gln Leu Ile Asp Lys Leu
 100 105 110
 Val Gly Ala Asn Arg Pro Glu Leu Glu Lys Lys Val Gln Ala Ile Gly
 115 120 125
 Asp Gly Ser
 130

<210> 172
 <211> 131
 <212> PRT
 <213> Oryza sativa

<400> 172
 Met Gly Ser Cys Val Gly Lys Glu Arg Ser Asp Glu Glu Asp Lys Ile
 1 5 10 15
 Asp Phe Lys Gly Gly Asn Val His Val Ile Ser Asn Lys Glu Asn Trp
 20 25 30
 Asp His Lys Ile Ala Glu Ala Asn Lys Asp Gly Lys Ile Val Ile Ala
 35 40 45
 Asn Phe Ser Ala Ala Trp Cys Gly Pro Cys Arg Val Ile Ala Pro Val
 50 55 60
 Tyr Ala Glu Met Ser Gln Thr Tyr Pro Gln Phe Met Phe Leu Thr Ile
 65 70 75 80
 Asp Val Asp Glu Leu Met Asp Phe Ser Ser Ser Trp Asp Ile Arg Ala
 85 90 95
 Thr Pro Thr Phe Phe Phe Leu Lys Asn Gly Glu Gln Val Asp Lys Leu
 100 105 110
 Val Gly Ala Asn Lys Pro Glu Leu Glu Lys Lys Val Ala Ala Leu Ala
 115 120 125
 Asp Ser Ala
 130

<210> 173
 <211> 296
 <212> PRT
 <213> Solanum tuberosum

<400> 173
 Met Ala Thr Leu Thr Asn Phe Leu Leu Lys Pro Ser Pro Asn Leu Ala
 1 5 10 15
 Ser Ile Thr Lys Ile Ser Pro Ser Leu Tyr Ser Asn Phe Pro Phe Glu
 20 25 30
 Lys Ser Lys Gln Ser Ile Phe Lys Asn Leu Lys Thr Asn Lys Pro Leu
 35 40 45
 Leu Ile Thr Lys Ala Thr Ala Ala Pro Asp Val Glu Lys Lys Val Ala
 50 55 60
 Lys Ser Glu Arg Val Gln Lys Val Asn Ser Met Glu Glu Leu Asp Glu
 65 70 75 80
 Ala Leu Lys Lys Ala Lys Asn Arg Leu Val Val Val Glu Phe Ala Gly
 85 90 95
 Lys Asp Ser Glu Arg Ser Lys Asn Ile Tyr Pro Phe Met Val Asn Leu
 100 105 110

Ser	Lys	Thr	Cys	Asn	Asp	Val	Asp	Phe	Leu	Leu	Val	Ile	Gly	Asp	Glu
		115					120					125			
Thr	Glu	Lys	Thr	Lys	Ala	Leu	Cys	Arg	Arg	Glu	Lys	Ile	Asp	Lys	Val
	130					135					140				
Pro	His	Phe	Asn	Phe	Tyr	Lys	Ser	Met	Glu	Lys	Ile	His	Glu	Glu	Glu
145					150					155					160
Gly	Ile	Gly	Pro	Asp	Leu	Leu	Ala	Gly	Asp	Val	Leu	Tyr	Tyr	Gly	Asp
				165					170					175	
Ser	His	Ser	Glu	Val	Val	Gln	Leu	His	Ser	Arg	Glu	Asp	Val	Glu	Lys
			180					185					190		
Val	Ile	Gln	Asp	His	Lys	Ile	Asp	Lys	Lys	Leu	Ile	Val	Leu	Asp	Val
		195					200					205			
Gly	Leu	Lys	His	Cys	Gly	Pro	Cys	Val	Lys	Val	Tyr	Pro	Thr	Val	Ile
	210					215					220				
Lys	Leu	Ser	Lys	Gln	Met	Ala	Asp	Thr	Val	Val	Phe	Ala	Arg	Met	Asn
225					230					235					240
Gly	Asp	Glu	Asn	Asp	Ser	Cys	Met	Gln	Phe	Leu	Lys	Asp	Met	Asp	Val
				245					250					255	
Ile	Glu	Val	Pro	Thr	Phe	Leu	Phe	Ile	Arg	Asp	Gly	Glu	Ile	Cys	Gly
			260					265					270		
Arg	Tyr	Val	Gly	Ser	Gly	Lys	Gly	Glu	Leu	Ile	Gly	Glu	Ile	Leu	Arg
		275					280					285			
Tyr	Gln	Gly	Val	Arg	Val	Thr	Tyr								
	290					295									

<210> 174
 <211> 131
 <212> PRT
 <213> Secale cereale

<400> 174

Met	Gly	Gly	Cys	Val	Gly	Lys	Gly	Arg	Ser	Ile	Val	Glu	Glu	Lys	Leu
1				5					10					15	
Asp	Phe	Lys	Gly	Gly	Asn	Val	His	Val	Ile	Thr	Thr	Lys	Glu	Asp	Trp
			20					25					30		
Asp	Gln	Lys	Ile	Glu	Glu	Ala	Asn	Lys	Asp	Gly	Lys	Ile	Val	Val	Ala
		35					40					45			
Asn	Phe	Ser	Ala	Ser	Trp	Cys	Gly	Pro	Cys	Arg	Val	Val	Ala	Pro	Val
		50				55					60				
Tyr	Ala	Gly	Met	Ser	Lys	Thr	Tyr	Pro	Gln	Leu	Met	Phe	Leu	Thr	Ile
65					70					75					80
Asp	Val	Asp	Asp	Leu	Met	Asp	Phe	Ser	Ser	Thr	Trp	Asp	Ile	Arg	Ala
				85					90					95	
Thr	Pro	Thr	Phe	Phe	Phe	Leu	Lys	Asn	Gly	Gln	Gln	Ile	Asp	Lys	Leu
			100					105					110		
Val	Gly	Ala	Asn	Lys	Pro	Glu	Leu	Glu	Lys	Lys	Val	Gln	Ala	Leu	Gly
		115					120					125			
Asp	Gly	Ser													
		130													

<210> 175
 <211> 119
 <212> PRT
 <213> Secale cereale

<400> 175

Met	Gly	Gly	Cys	Val	Gly	Lys	Gly	Arg	Ser	Ile	Val	Glu	Glu	Lys	Leu
1				5					10					15	
Asp	Phe	Lys	Gly	Gly	Asn	Val	His	Val	Ile	Thr	Thr	Lys	Glu	Asp	Trp
			20					25					30		
Asp	Gln	Lys	Ile	Glu	Glu	Ala	Asn	Lys	Asp	Gly	Lys	Ile	Val	Val	Ala
		35					40					45			
Asn	Phe	Ser	Ala	Ser	Trp	Cys	Gly	Pro	Cys	Arg	Val	Ile	Ala	Pro	Val
		50				55					60				
Tyr	Ala	Glu	Met	Ser	Lys	Thr	Tyr	Pro	Gln	Leu	Met	Phe	Leu	Thr	Ile

65					70					75					80
Asp	Val	Asp	Asp	Leu	Met	Asp	Phe	Ser	Ser	Thr	Trp	Asp	Ile	Arg	Ala
				85					90					95	
Thr	Pro	Thr	Phe	Phe	Phe	Leu	Lys	Asn	Gly	Gln	Gln	Ile	Asp	Lys	Leu
			100					105					110		
Val	Gly	Ala	Asn	Lys	Pro	Glu									
		115													

<210> 176
 <211> 106
 <212> PRT
 <213> Manduca sexta

<400> 176															
Met	Ser	Ile	His	Ile	Lys	Asp	Ala	Asp	Asp	Leu	Lys	Asn	Arg	Leu	Ala
1				5				10						15	
Glu	Ala	Gly	Asp	Lys	Leu	Val	Val	Ile	Asp	Phe	Met	Ala	Thr	Trp	Cys
			20					25					30		
Gly	Pro	Cys	Lys	Met	Ile	Gly	Pro	Lys	Leu	Asp	Glu	Met	Ala	Ala	Glu
		35				40					45				
Met	Ala	Asp	Ser	Ile	Val	Val	Val	Lys	Val	Asp	Val	Asp	Glu	Cys	Glu
	50				55				60						
Asp	Ile	Ala	Ala	Asp	Tyr	Asn	Ile	Asn	Ser	Met	Pro	Thr	Phe	Val	Phe
65				70				75						80	
Val	Lys	Asn	Ser	Lys	Lys	Leu	Glu	Glu	Phe	Ser	Gly	Ala	Asn	Val	Asp
				85				90					95		
Lys	Leu	Lys	Asn	Thr	Ile	Leu	Lys	Leu	Lys						
			100					105							

<210> 177
 <211> 221
 <212> PRT
 <213> Bradyrhizobium japonicum

<400> 177															
Met	Leu	Asp	Thr	Lys	Pro	Ser	Ala	Thr	Arg	Arg	Ile	Pro	Leu	Val	Ile
1				5				10						15	
Ala	Thr	Val	Ala	Val	Gly	Gly	Leu	Ala	Gly	Phe	Ala	Ala	Leu	Tyr	Gly
			20					25					30		
Leu	Gly	Leu	Ser	Arg	Ala	Pro	Thr	Gly	Asp	Pro	Ala	Cys	Arg	Ala	Ala
		35				40					45				
Val	Ala	Thr	Ala	Gln	Lys	Ile	Ala	Pro	Leu	Ala	His	Gly	Glu	Val	Ala
	50				55				60						
Ala	Leu	Thr	Met	Ala	Ser	Ala	Pro	Leu	Lys	Leu	Pro	Asp	Leu	Ala	Phe
65				70				75						80	
Glu	Asp	Ala	Asp	Gly	Lys	Pro	Lys	Lys	Leu	Ser	Asp	Phe	Arg	Gly	Lys
			85					90					95		
Thr	Leu	Leu	Val	Asn	Leu	Trp	Ala	Thr	Trp	Cys	Val	Pro	Cys	Arg	Lys
			100					105					110		
Glu	Met	Pro	Ala	Leu	Asp	Glu	Leu	Gln	Gly	Lys	Leu	Ser	Gly	Pro	Asn
		115				120						125			
Phe	Glu	Val	Val	Ala	Ile	Asn	Ile	Asp	Thr	Arg	Asp	Pro	Glu	Lys	Pro
	130				135						140				
Lys	Thr	Phe	Leu	Lys	Glu	Ala	Asn	Leu	Thr	Arg	Leu	Gly	Tyr	Phe	Asn
145				150				155						160	
Asp	Gln	Lys	Ala	Lys	Val	Phe	Gln	Asp	Leu	Lys	Ala	Ile	Gly	Arg	Ala
			165					170					175		
Leu	Gly	Met	Pro	Thr	Ser	Val	Leu	Val	Asp	Pro	Gln	Gly	Cys	Glu	Ile
		180					185					190			
Ala	Thr	Ile	Ala	Gly	Pro	Ala	Glu	Trp	Ala	Ser	Glu	Asp	Ala	Leu	Lys
		195				200						205			
Leu	Ile	Arg	Ala	Ala	Thr	Gly	Lys	Ala	Ala	Ala	Ala	Leu			
	210					215					220				

<210> 178
 <211> 167
 <212> PRT
 <213> Haemophilus influenzae

<400> 178
 Met Lys Ile Lys Lys Leu Leu Lys Asn Gly Leu Ser Leu Phe Leu Thr
 1 5 10 15
 Phe Ile Val Ile Thr Ser Ile Leu Asp Phe Val Arg Arg Pro Val Val
 20 25 30
 Pro Glu Glu Ile Asn Lys Ile Thr Leu Gln Asp Leu Gln Gly Asn Thr
 35 40 45
 Phe Ser Leu Glu Ser Leu Asp Gln Asn Lys Pro Thr Leu Leu Tyr Phe
 50 55 60
 Trp Gly Thr Trp Cys Gly Tyr Cys Arg Tyr Thr Ser Pro Ala Ile Asn
 65 70 75 80
 Ser Leu Ala Lys Glu Gly Tyr Gln Val Val Ser Val Ala Leu Arg Ser
 85 90 95
 Gly Asn Glu Ala Asp Val Asn Asp Tyr Leu Ser Lys Asn Asp Tyr His
 100 105 110
 Phe Thr Thr Val Asn Asp Pro Lys Gly Glu Phe Ala Glu Arg Trp Gln
 115 120 125
 Ile Asn Val Thr Pro Thr Ile Val Leu Leu Ser Lys Gly Lys Met Asp
 130 135 140
 Leu Val Thr Thr Gly Leu Thr Ser Tyr Trp Gly Leu Lys Val Arg Leu
 145 150 155 160
 Phe Phe Ala Glu Phe Phe Gly
 165

<210> 179
 <211> 163
 <212> PRT
 <213> Leishmania major

<400> 179
 Met Leu Lys Val Ser Ser Lys Glu His Tyr Ala Glu Ile Lys Lys Lys
 1 5 10 15
 Ala Glu Asp Ser Leu Gly Leu Val Val His Phe Ser Ala Thr Trp Cys
 20 25 30
 Glu Pro Cys Thr Ala Val Asn Glu His Leu Thr Lys Gln Ala Ala Glu
 35 40 45
 Tyr Gly Asp Asn Val Val Phe Ala Glu Val Asp Cys Gly Glu Leu Gly
 50 55 60
 Asp Val Cys Glu Ala Glu Gly Val Glu Ser Val Pro Phe Val Ala Tyr
 65 70 75 80
 Phe Arg Thr Pro Leu Val Gly Asp Asp Arg Arg Val Glu Arg Val Ala
 85 90 95
 Asp Val Ala Gly Ala Lys Phe Asp Gln Ile Asp Met Asn Thr His Ser
 100 105 110
 Leu Phe Gly Glu Lys Gly Gly Asn Arg Gly Ser Ala Glu Gly Leu Cys
 115 120 125
 His Ser Gly Arg Leu Pro Ala Leu Pro His Glu Ala Ala Arg Gly Arg
 130 135 140
 Asn Val His His Arg His Pro Ile Ser Ser Ala Leu Arg Leu Tyr Trp
 145 150 155 160
 Ser Ala Val

<210> 180
 <211> 275
 <212> PRT
 <213> Mortierella alpina

<400> 180
 Met Val Ser Asn Asn Tyr Ile Asp Ile Thr Ser Glu Asp Asp Phe Ala

1	Gln	Val	Phe	Gln	5	Pro	Ser	Ser	Ser	Thr	10	Val	Tyr	Ala	Leu	Asn	15	Phe	Trp
				20		Pro	Pro	Cys	Val	25	Gln	Met	Asn	Glu	Val	30	Phe	Glu	Glu
			35			Asn	Ala	Asn	Val	40	Asn	Phe	Leu	Lys	Ile	45	Glu	Ala	Glu
	50					55								60					
	Lys	Phe	Pro	Asp	Ile	Ser	Glu	Asp	Tyr	Glu	Ile	Ala	Ala	Val	Pro	Ser			
65					70											80			
	Phe	Val	Ile	Val	Lys	Glu	Gly	Thr	Val	Val	Asp	Arg	Val	Glu	Gly	Ala			
				85						90						95			
	Asn	Ala	Pro	Glu	Leu	Ala	Lys	Val	Ile	Ala	Lys	Tyr	Ser	Lys	Ser	Thr			
				100					105										
	Ser	Ser	Pro	Leu	Pro	Thr	Gln	Ser	Ser	Thr	Met	Ala	Ala	Ala	Gly	His			
			115						120										
	Ala	Ala	Pro	Ser	Val	Ala	Pro	Pro	Thr	Met	Ser	Pro	Glu	Glu	Met	Asn			
			130						135										
	Ala	Arg	Leu	Lys	Glu	Leu	Thr	Ser	Ser	Ser	Ser	Val	Met	Ala	Phe	Ile			
145					150											160			
	Lys	Gly	Thr	Pro	Thr	Ala	Pro	Arg	Cys	Gln	Phe	Ser	Arg	Gln	Leu	Leu			
				165						170						175			
	Glu	Ile	Leu	Thr	Ala	Gln	Asn	Ile	Arg	Phe	Ser	Ser	Phe	Asn	Ile	Leu			
				180					185							190			
	Ala	Asp	Asp	Glu	Val	Arg	Gln	Ala	Met	Lys	Thr	Phe	Ser	Asp	Trp	Pro			
			195						200										
	Thr	Phe	Pro	Gln	Val	Tyr	Val	Lys	Gly	Glu	Phe	Val	Gly	Gly	Leu	Asp			
			210						215										
	Val	Val	Lys	Glu	Leu	Val	Ala	Ser	Gly	Glu	Phe	Gln	Ala	Leu	Val	Pro			
225					230											240			
	Ala	Glu	Lys	Asp	Leu	Lys	Thr	Arg	Met	Asp	Glu	Leu	Ile	Arg	Lys	Ala			
				245						250						255			
	Pro	Val	Met	Ile	Phe	Ile	Lys	Gly	Ser	Pro	Glu	Thr	Pro	Arg	Cys	Gly			
				260					265							270			
	Phe	Ser	Lys																
			275																

<210> 181
 <211> 160
 <212> PRT
 <213> Neisseria gonorrhoeae

<400>	181																		
Met	Lys	Arg	Leu	Ile	Leu	Ala	Ala	Ile	Ala	Leu	Ala	Ala	Thr	Phe	Gly				
1				5					10					15					
Ala	His	Thr	Ala	Ser	Gly	Asp	Glu	Leu	Ala	Gly	Trp	Lys	Asp	Asn	Thr				
			20						25					30					
Pro	Gln	Asn	Leu	Gln	Ser	Leu	Lys	Ala	Pro	Val	Arg	Ile	Ala	Asn	Leu				
			35					40						45					
Trp	Ala	Thr	Trp	Cys	Gly	Pro	Cys	Arg	Lys	Glu	Met	Pro	Ala	Met	Ser				
	50					55					60								
Lys	Trp	Tyr	Lys	Ala	Gln	Lys	Lys	Gly	Ser	Val	Asp	Met	Val	Gly	Ile				
65				70						75					80				
Ala	Leu	Asp	Thr	Ser	Asp	Asn	Ile	Gly	Asn	Phe	Leu	Lys	Gln	Thr	Pro				
				85					90						95				
Val	Ser	Tyr	Pro	Ile	Trp	Arg	Tyr	Thr	Gly	Ala	Asn	Ser	Arg	Ser	Phe				
			100						105						110				
Met	Lys	Ser	Tyr	Gly	Asn	Asn	Val	Gly	Val	Leu	Pro	Phe	Thr	Val	Val				
			115					120						125					
Glu	Ala	Pro	Lys	Cys	Gly	Tyr	Arg	Gln	Thr	Ile	Thr	Gly	Glu	Leu	Asn				
			130			135							140						
Glu	Lys	Ser	Leu	Thr	Glu	Ala	Val	Lys	Leu	Ala	His	Ser	Lys	Cys	Arg				
145					150					155					160				

<210> 182
 <211> 208

<212> PRT
 <213> Rhizobium loti

<400> 182

Met	Ala	Gly	Ala	Leu	Ala	Gly	Ala	Val	Ala	Val	Tyr	Val	Ser	Glu	Ser
1				5					10					15	
Arg	Ser	Gly	Asn	Asn	Ala	Pro	Ala	Arg	Val	Ala	Val	Gly	Gly	Ser	Lys
			20					25					30		
Asp	Asp	Val	Ala	Cys	Ala	Ala	Lys	Ser	Gly	Arg	Ala	Lys	Lys	Ile	Ala
		35					40					45			
Ala	Ala	Ala	Thr	Gly	Glu	Val	Ala	Ala	Leu	Leu	Pro	Ala	Asp	Pro	Pro
		50				55					60				
Gln	Ser	Met	Lys	Ser	Leu	Ala	Phe	Asn	Gly	Pro	Asp	Gly	Lys	Pro	Met
65					70					75					80
Thr	Ile	Ala	Asp	His	Ala	Gly	Lys	Thr	Val	Leu	Leu	Asn	Leu	Trp	Ala
				85					90					95	
Thr	Trp	Cys	Ala	Pro	Cys	Arg	Ala	Glu	Met	Pro	Ala	Leu	Asn	Ala	Leu
			100					105					110		
Gln	Lys	Asp	Lys	Gly	Ser	Asp	Ala	Phe	Gln	Val	Ile	Ala	Val	Asn	Val
		115					120					125			
Asp	Ala	Gly	Asp	Asp	Val	Lys	Pro	Lys	Lys	Phe	Leu	Lys	Glu	Thr	Gly
		130				135					140				
Val	Glu	Ala	Leu	Gly	Tyr	Phe	Arg	Asp	Ser	Thr	Val	Ala	Leu	Phe	Asn
145					150					155					160
Asp	Leu	Lys	Ala	Arg	Gly	Leu	Ala	Leu	Gly	Leu	Pro	Val	Thr	Met	Leu
				165					170					175	
Ile	Asp	Ser	Glu	Gly	Cys	Leu	Ile	Ala	His	Met	Asn	Gly	Pro	Ala	Glu
			180					185					190		
Trp	Ser	Gly	Arg	Asp	Ala	Arg	Arg	Leu	Val	Glu	Thr	Ala	Leu	Gly	Ser
		195					200					205			

<210> 183
 <211> 176
 <212> PRT
 <213> Rhodobacter capsulatus

<400> 183

Met	Ala	Lys	Pro	Leu	Met	Phe	Leu	Pro	Leu	Leu	Val	Met	Ala	Gly	Phe
1				5					10					15	
Val	Gly	Ala	Gly	Tyr	Phe	Ala	Met	Gln	Gln	Asn	Asp	Pro	Asn	Ala	Met
			20					25					30		
Pro	Thr	Ala	Leu	Ala	Gly	Lys	Glu	Ala	Pro	Ala	Val	Arg	Leu	Glu	Pro
		35					40					45			
Leu	Gly	Ala	Glu	Ala	Pro	Phe	Thr	Asp	Ala	Asp	Leu	Arg	Asp	Gly	Lys
		50				55					60				
Ile	Lys	Leu	Val	Asn	Phe	Trp	Ala	Ser	Trp	Cys	Ala	Pro	Cys	Arg	Val
65				70						75					80
Glu	His	Pro	Asn	Leu	Ile	Gly	Leu	Lys	Gln	Asp	Gly	Ile	Glu	Ile	Met
			85						90					95	
Gly	Val	Asn	Trp	Lys	Asp	Thr	Pro	Asp	Gln	Ala	Gln	Gly	Phe	Leu	Ala
			100					105					110		
Glu	Met	Gly	Ser	Pro	Tyr	Thr	Arg	Leu	Gly	Ala	Asp	Pro	Gly	Asn	Lys
		115					120					125			
Met	Gly	Leu	Asp	Trp	Gly	Val	Ala	Gly	Val	Pro	Glu	Thr	Phe	Val	Val
		130				135					140				
Asp	Gly	Ala	Gly	Arg	Ile	Leu	Thr	Arg	Ile	Ala	Gly	Pro	Leu	Thr	Glu
145					150					155					160
Asp	Val	Ile	Thr	Lys	Lys	Ile	Asp	Pro	Leu	Leu	Ala	Gly	Thr	Ala	Asp
				165					170					175	

<210> 184
 <211> 105
 <212> PRT
 <213> Synechocystis

<400> 184
Met Ala Val Lys Lys Gln Phe Ala Asn Phe Ala Glu Met Leu Ala Gly
1 5 10 15
Ser Pro Lys Pro Val Leu Val Asp Phe Tyr Ala Thr Trp Cys Gly Pro
20 25 30
Cys Gln Met Met Ala Pro Ile Leu Glu Gln Val Gly Ser His Leu Arg
35 40 45
Gln Gln Ile Gln Val Val Lys Ile Asp Thr Asp Lys Tyr Pro Ala Ile
50 55 60
Ala Thr Gln Tyr Gln Ile Gln Ser Leu Pro Thr Leu Val Leu Phe Lys
65 70 75 80
Gln Gly Gln Pro Val His Arg Met Glu Gly Val Gln Gln Ala Ala Gln
85 90 95
Leu Ile Gln Gln Leu Gln Val Phe Val
100 105

<210> 185
<211> 109
<212> PRT
<213> Synechocystis

<400> 185
Met Ser Leu Leu Glu Ile Thr Asp Ala Glu Phe Glu Gln Glu Thr Gln
1 5 10 15
Gly Gln Thr Lys Pro Val Leu Val Tyr Phe Trp Ala Ser Trp Cys Gly
20 25 30
Pro Cys Arg Leu Met Ala Pro Ala Ile Gln Ala Ile Ala Lys Asp Tyr
35 40 45
Gly Asp Lys Leu Lys Val Leu Lys Leu Glu Val Asp Pro Asn Pro Ala
50 55 60
Ala Val Ala Gln Cys Lys Val Glu Gly Val Pro Ala Leu Arg Leu Phe
65 70 75 80
Lys Asn Asn Glu Leu Val Met Thr His Glu Gly Ala Ile Ala Lys Pro
85 90 95
Lys Leu Leu Glu Leu Leu Lys Glu Glu Leu Asp Phe Ile
100 105

<210> 186
<211> 290
<212> PRT
<213> Schizosaccharomyces pombe

<400> 186
Met Ser Val Ile Glu Ile Arg Ser Tyr Gln His Trp Ile Ser Thr Ile
1 5 10 15
Pro Lys Ser Gly Tyr Leu Ala Val Asp Cys Tyr Ala Asp Trp Cys Gly
20 25 30
Pro Cys Lys Ala Ile Ser Pro Leu Phe Ser Gln Leu Ala Ser Lys Tyr
35 40 45
Ala Ser Pro Lys Phe Val Phe Ala Lys Val Asn Val Asp Glu Gln Arg
50 55 60
Gln Ile Ala Ser Gly Leu Gly Val Lys Ala Met Pro Thr Phe Val Phe
65 70 75 80
Phe Glu Asn Gly Lys Gln Ile Asp Met Leu Thr Gly Ala Asn Pro Gln
85 90 95
Ala Leu Lys Glu Lys Val Ala Leu Ile Ser Ser Lys Ala Thr Gly Thr
100 105 110
Gly Ala Leu Ala Ser Ser Ser Ser Ala Pro Val Lys Gly Phe Ala Ser
115 120 125
Leu Gln Gly Cys Ile Glu Asn Pro Gln Leu Glu Cys Leu Asn Gln Gln
130 135 140
Asp Asp His Asp Leu Lys Ser Ala Phe Asn Ser Asn Pro Ser Ser Phe
145 150 155 160
Leu Glu Ser Asp Val Asp Glu Gln Leu Met Ile Tyr Ile Pro Phe Leu
165 170 175

Glu	Val	Val	Lys	Val	His	Ser	Ile	Ala	Ile	Thr	Pro	Val	Lys	Gly	Glu
			180					185					190		
Thr	Ser	Ser	Ala	Pro	Lys	Thr	Ile	Lys	Leu	Tyr	Ile	Asn	Gln	Pro	Asn
		195					200					205			
Asn	Leu	Ser	Phe	Glu	Asp	Ala	Glu	Ser	Phe	Thr	Pro	Thr	Gln	Val	Ile
	210					215					220				
Glu	Asp	Ile	Val	Tyr	Glu	Gln	Asp	Asp	Gln	Pro	Thr	Ile	Ile	Pro	Leu
225					230					235					240
Arg	Phe	Val	Lys	Phe	Gln	Arg	Val	Asn	Ser	Leu	Val	Ile	Phe	Ile	Tyr
				245					250					255	
Ser	Asn	Val	Gly	Glu	Glu	Glu	Thr	Thr	Lys	Ile	Ser	Arg	Leu	Glu	Leu
			260					265					270		
Phe	Gly	Glu	Pro	Val	Gly	Asp	Ser	Ser	Lys	Gly	Lys	Leu	Gln	Lys	Val
		275					280					285			
Glu	Ala														
	290														

<210> 187
 <211> 185
 <212> PRT
 <213> Treponema pallidum

<400> 187

Met	Phe	Arg	Ser	Asp	Leu	Val	Leu	Ala	Val	Trp	Gly	Val	Thr	Cys	Val
1				5					10					15	
Gln	Ala	Ala	Asp	Val	Ala	His	Asn	Ala	Asp	Val	Pro	Ser	Arg	Ser	Leu
			20					25					30		
Lys	Ala	Leu	Glu	Arg	Phe	Arg	Phe	Phe	Val	Tyr	Pro	Lys	Pro	Leu	Asp
		35					40					45			
Leu	Ser	Ser	Asp	Phe	His	Ala	Lys	Ala	Leu	Lys	Gly	Glu	Ala	Leu	Val
	50					55					60				
Pro	Ser	Leu	Phe	Lys	Gly	Lys	Val	Thr	Leu	Leu	Asn	Phe	Trp	Ala	Thr
65					70					75					80
Trp	Cys	Pro	Pro	Cys	Arg	Ala	Glu	Met	Pro	Ser	Met	Asp	Arg	Met	Gln
				85					90					95	
Ala	Leu	Met	Arg	Gly	Asn	Asp	Phe	Gln	Ile	Val	Ala	Val	Asn	Val	Gly
			100					105					110		
Asp	Ser	Arg	Lys	Gln	Val	Glu	Ser	Phe	Ile	Ala	Arg	Gly	Lys	His	Thr
		115					120					125			
Phe	Pro	Ile	Tyr	Leu	Asp	Glu	Glu	Gly	Ser	Leu	Gly	Ser	Val	Phe	Ala
	130					135					140				
Ser	Arg	Gly	Leu	Pro	Thr	Thr	Tyr	Val	Val	Asp	Lys	Ala	Gly	Arg	Ile
145					150					155					160
Val	Ala	Val	Val	Val	Gly	Ser	Val	Glu	Tyr	Asp	Gln	Pro	Glu	Leu	Val
				165					170					175	
Ala	Leu	Phe	Lys	Glu	Leu	Ala	Arg	Asp							
			180					185							

<210> 188
 <211> 246
 <212> PRT
 <213> Caenorhabditis elegans

<400> 188

Met	Leu	Leu	Arg	Leu	Leu	Ala	Val	Leu	Gly	Leu	Phe	Ala	Val	Gly	Val
1				5					10					15	
Ser	Gly	Gly	Pro	Thr	Arg	Ser	Ser	Lys	Leu	Val	Phe	Leu	Asn	Glu	Glu
			20					25					30		
Asn	Trp	Thr	Asp	Leu	Met	Lys	Gly	Glu	Trp	Met	Ile	Glu	Phe	His	Ala
		35					40					45			
Pro	Trp	Cys	Pro	Ala	Cys	Lys	Asp	Leu	Gln	Lys	Ala	Trp	Asn	Ala	Phe
	50					55					60				
Ala	Asp	Trp	Ser	Asp	Asp	Leu	Gly	Ile	Lys	Val	Gly	Glu	Val	Asp	Val
65					70					75					80
Thr	Val	Asn	Pro	Gly	Leu	Ser	Gly	Arg	Phe	Leu	Val	Thr	Ala	Leu	Pro

Thr	Ile	Tyr	His	85	Val	Lys	Asp	Gly	Val	90	Phe	Arg	Gln	Tyr	Ser	95	Gly	Ala
			100						105						110			
Arg	Asp	Lys	Asn	Asp	Phe	Ile	Ser	Phe	Val	Glu	Asp	Lys	Lys	Tyr	Arg			
		115					120					125						
Val	Ile	Asp	Pro	Val	Pro	Asp	Tyr	Lys	His	Pro	Asn	Ser	Lys	Gln	Met			
	130					135					140							
Ala	Val	Val	Ala	Val	Phe	Phe	Lys	Leu	Ser	Met	Ser	Val	Arg	Asp	Leu			
145					150					155					160			
His	Asn	His	Leu	Val	Glu	Asp	Lys	Gly	Ile	Pro	Ser	Trp	Ala	Ser	Tyr			
			165						170					175				
Gly	Leu	Phe	Ala	Gly	Val	Thr	Leu	Ala	Leu	Gly	Cys	Val	Leu	Gly	Phe			
			180					185					190					
Phe	Ile	Val	Ile	Ile	Ile	Asp	Gln	Val	Phe	Pro	Thr	Gly	Pro	Arg	Lys			
	195					200						205						
Ser	Gln	Gln	Ala	Lys	Lys	Thr	Glu	Lys	Lys	Asp	Ala	Lys	Lys	Asp	Ser			
	210					215					220							
Gly	Thr	Glu	Ser	Pro	Thr	Lys	Lys	Asn	Gly	Asn	Asn	Asn	Asn	Gly	Lys			
225					230					235					240			
Glu	Thr	Lys	Lys	Thr	Lys													
				245														

<210> 189

<211> 284

<212> PRT

<213> Caenorhabditis elegans

<400> 189

Met	Pro	Val	Ile	Asn	Val	Lys	Asp	Asp	Glu	Asp	Phe	Arg	Asn	Gln	Leu			
1				5					10					15				
Ser	Leu	Ala	Gly	Leu	Lys	Ser	Val	Ile	Val	Asp	Phe	Thr	Ala	Val	Trp			
			20					25					30					
Cys	Gly	Pro	Cys	Lys	Met	Ile	Ala	Pro	Thr	Phe	Glu	Ala	Leu	Ser	Asn			
		35				40					45							
Gln	Tyr	Leu	Gly	Ala	Val	Phe	Leu	Lys	Val	Asp	Val	Glu	Ile	Cys	Glu			
	50					55				60								
Lys	Thr	Ser	Ser	Glu	Asn	Gly	Val	Asn	Ser	Met	Pro	Thr	Phe	Met	Val			
65					70				75					80				
Phe	Gln	Ser	Gly	Val	Arg	Val	Glu	Gln	Met	Lys	Gly	Ala	Asp	Ala	Lys			
				85				90						95				
Ala	Leu	Glu	Thr	Met	Val	Lys	Lys	Tyr	Ala	Asp	Asn	Ser	Ala	Ala	Asp			
			100					105					110					
Ser	Leu	Val	Ala	Gly	Gln	Met	Asp	Leu	Thr	Pro	Leu	Val	Asp	Lys	Lys			
		115					120					125						
Gln	Met	Glu	Cys	Leu	Asn	Glu	Ser	Asp	Asp	Thr	Pro	Leu	Gly	Arg	Phe			
	130					135					140							
Leu	Glu	Gly	Asn	Cys	Asn	Leu	Val	Ser	Asp	Cys	Asp	Glu	Gln	Leu	Ile			
145					150					155					160			
Ile	Ser	Leu	Pro	Phe	Asn	Gln	Pro	Val	Lys	Val	His	Ser	Ile	Leu	Ile			
				165					170					175				
Lys	Gly	Val	Ser	Asp	Arg	Ala	Pro	Lys	Lys	Val	Lys	Val	Phe	Ile	Asn			
		180						185					190					
Leu	Pro	Lys	Thr	Thr	Asp	Phe	Asp	Asn	Ala	Thr	Ala	Leu	Glu	Pro	Thr			
		195					200					205						
Gln	Met	Leu	Glu	Phe	Asp	Glu	Ser	Ser	Ile	Gln	Gly	His	Gly	Gln	Val			
	210					215					220							
Val	Ala	Leu	Lys	Tyr	Val	Lys	Phe	Gln	Asn	Val	Gln	Asn	Ile	Gln	Phe			
225					230					235					240			
Phe	Ile	Glu	Asn	Asn	Val	Gly	Gly	Gly	Asp	Val	Thr	Glu	Leu	Val	Lys			
				245					250					255				
Leu	Thr	Val	Phe	Gly	Thr	Pro	Leu	Ser	Ala	Leu	Asn	Met	Asn	Glu	Phe			
		260						265					270					
Lys	Arg	Val	Ala	Gly	Lys	Ala	Gly	Asp	Ala	Ala	His							
		275					280											

<210> 190
 <211> 287
 <212> PRT
 <213> Drosophila melanogaster

<400> 190
 Met Ser Val Arg Val Ile Asn Asp Glu Ser His Phe Gln Ala Glu Leu
 1 5 10 15
 Ala Gln Ala Gly Ile Gln Leu Val Val Val Asp Phe Thr Ala Ser Trp
 20 25 30
 Cys Gly Pro Cys Lys Arg Ile Ala Pro Ile Phe Glu Thr Phe Pro Thr
 35 40 45
 Lys Tyr Pro Lys Ala Ile Phe Leu Lys Val Asp Val Asp Lys Cys Gln
 50 55 60
 Asp Thr Ala Ala Gly Gln Gly Val Ser Ala Met Pro Thr Phe Ile Phe
 65 70 75 80
 Tyr Arg Asn Arg Thr Lys Ile Asp Arg Val Gln Gly Ala Asp Val Asn
 85 90 95
 Gly Leu Glu Ala Lys Ile Gln Glu His Ile Gly Thr Ser Gly Gly Glu
 100 105 110
 Glu Gly Gly Glu Asp Tyr Gly Gln Gly Leu Met Glu Leu Asn Thr Phe
 115 120 125
 Ile Ser Lys Gln Glu Cys Glu Cys Leu Asn Glu Ala Asp Asp His Asn
 130 135 140
 Leu Lys His Ala Leu Ala Ser Ala Gly Gly Tyr Leu Gln Ser Asp Cys
 145 150 155 160
 Asp Glu Gln Leu Ile Leu Ser Ile Thr Phe Asn Gln Ala Val Lys Ile
 165 170 175
 His Ser Leu Lys Phe Lys Ala Pro Ser His Leu Gly Pro Lys Asp Val
 180 185 190
 Lys Leu Phe Ile Asn Gln Pro Arg Thr Ile Asp Phe Asp Met Ala Glu
 195 200 205
 Ser Met Asn Ser Val Gln Asp Leu Ser Leu Ala Gln Lys Glu Leu Glu
 210 215 220
 Ser Gly Val Pro Val Asn Leu Arg Tyr Val Lys Phe Gln Asn Val Gln
 225 230 235 240
 Asn Ile Gln Ile Phe Val Lys Asn Asn Gln Ser Gly Gly Asp Val Thr
 245 250 255
 Gln Ile Asp Tyr Ile Gly Phe Ile Gly Ser Pro Ile Met Thr Thr Lys
 260 265 270
 Met Asn Asp Phe Lys Arg Val Ala Gly Lys Lys Gly Glu Ser His
 275 280 285

<210> 191
 <211> 289
 <212> PRT
 <213> Homo sapien

<400> 191
 Met Val Gly Val Lys Pro Val Gly Ser Asp Pro Asp Phe Gln Pro Glu
 1 5 10 15
 Leu Ser Gly Ala Gly Ser Arg Leu Ala Val Val Lys Phe Thr Met Arg
 20 25 30
 Gly Cys Gly Pro Cys Leu Arg Ile Ala Pro Ala Phe Ser Ser Met Ser
 35 40 45
 Asn Lys Tyr Pro Gln Ala Val Phe Leu Glu Val Asp Val His Gln Cys
 50 55 60
 Gln Gly Thr Ala Ala Thr Asn Asn Ile Ser Ala Thr Pro Thr Phe Leu
 65 70 75 80
 Phe Phe Arg Asn Lys Val Arg Ile Asp Gln Tyr Gln Gly Ala Asp Ala
 85 90 95
 Val Gly Leu Glu Glu Lys Ile Lys Gln His Leu Glu Asn Asp Pro Gly
 100 105 110
 Ser Asn Glu Asp Thr Asp Ile Pro Lys Gly Tyr Met Asp Leu Met Pro
 115 120 125
 Phe Ile Asn Lys Ala Gly Cys Glu Cys Leu Asn Glu Ser Asp Glu His

130	135	140
Gly Phe Asp Asn Cys Leu	Arg Lys Asp Thr Thr	Phe Leu Glu Ser Asp
145	150	155
Cys Asp Glu Gln Leu Leu	Ile Thr Val Ala Phe	Asn Gln Pro Val Lys
165	170	175
Leu Tyr Ser Met Lys Phe	Gln Gly Pro Asp Asn	Gly Gln Gly Pro Lys
180	185	190
Tyr Val Lys Ile Phe Ile	Asn Leu Pro Arg Ser	Met Asp Phe Glu Glu
195	200	205
Ala Glu Arg Ser Glu Pro	Thr Gln Ala Leu Glu	Leu Thr Glu Asp Asp
210	215	220
Ile Lys Glu Asp Gly Ile	Val Pro Leu Arg Tyr	Val Lys Phe Gln Asn
225	230	235
Val Asn Ser Val Thr Ile	Phe Val Gln Ser Asn	Gln Gly Glu Glu Glu
245	250	255
Thr Thr Arg Ile Ser Tyr	Phe Thr Phe Ile Gly	Thr Pro Val Gln Ala
260	265	270
Thr Asn Met Asn Asp Phe	Lys Arg Val Val Gly	Lys Lys Gly Glu Ser
275	280	285
His		

<210> 192
 <211> 335
 <212> PRT
 <213> Homo sapien

<400> 192

Met Glu Ala Gly Ala Ala	Glu Ala Ala Val Ala Ala	Val Glu Glu Val
1	5	10
Gly Ser Ala Gly Gln Phe	Glu Glu Leu Leu Arg	Leu Lys Ala Lys Ser
20	25	30
Leu Leu Val Val His Phe	Trp Ala Pro Trp Ala	Pro Gln Cys Ala Gln
35	40	45
Met Asn Glu Val Met Ala	Glu Leu Ala Lys Glu	Leu Pro Gln Val Ser
50	55	60
Phe Val Lys Leu Glu Ala	Glu Gly Val Pro Glu	Val Ser Glu Lys Tyr
65	70	75
Glu Ile Ser Ser Val Pro	Thr Phe Leu Phe Phe	Lys Asn Ser Gln Lys
85	90	95
Ile Asp Arg Leu Asp Gly	Ala His Ala Pro Glu	Leu Thr Lys Lys Val
100	105	110
Gln Arg His Ala Ser Ser	Gly Ser Phe Leu Pro	Ser Ala Asn Glu His
115	120	125
Leu Lys Glu Asp Leu Asn	Leu Arg Leu Lys Lys	Leu Thr His Ala Ala
130	135	140
Pro Cys Met Leu Phe Met	Lys Gly Thr Pro Gln	Glu Pro Arg Cys Gly
145	150	155
Phe Ser Lys Gln Met Val	Glu Ile Leu His Lys	His Asn Ile Gln Phe
165	170	175
Ser Ser Phe Asp Ile Phe	Ser Asp Glu Glu Val	Arg Gln Gly Leu Lys
180	185	190
Ala Tyr Ser Ser Trp Pro	Thr Tyr Pro Gln Leu	Tyr Val Ser Gly Glu
195	200	205
Leu Ile Gly Gly Leu Asp	Ile Ile Lys Glu Leu	Glu Ala Ser Glu Glu
210	215	220
Leu Asp Thr Ile Cys Pro	Lys Ala Pro Lys Leu	Glu Glu Arg Leu Lys
225	230	235
Val Leu Thr Asn Lys Ala	Ser Val Met Leu Phe	Met Lys Gly Asn Lys
245	250	255
Gln Glu Ala Lys Cys Gly	Phe Ser Lys Gln Ile	Leu Glu Ile Leu Asn
260	265	270
Ser Thr Gly Val Glu Tyr	Glu Thr Phe Asp Ile	Leu Glu Asp Glu Glu
275	280	285
Val Arg Gln Gly Leu Lys	Ala Tyr Ser Asn Trp	Pro Thr Tyr Pro Gln
290	295	300

Leu	Tyr	Val	Lys	Gly	Glu	Leu	Val	Gly	Gly	Leu	Asp	Ile	Val	Lys	Glu
305					310					315					320
Leu	Lys	Glu	Asn	Gly	Glu	Leu	Leu	Pro	Ile	Leu	Arg	Gly	Glu	Asn	
				325					330					335	

<210> 193
 <211> 131
 <212> PRT
 <213> Phalaris coerulescens

<400> 193

Met	Gly	Gly	Cys	Val	Gly	Lys	Asp	Arg	Gly	Ile	Val	Glu	Asp	Lys	Leu
1				5					10					15	
Asp	Phe	Lys	Gly	Gly	Asn	Val	His	Val	Ile	Thr	Thr	Lys	Glu	Asp	Trp
			20					25					30		
Asp	Gln	Lys	Ile	Ala	Glu	Ala	Asn	Lys	Asp	Gly	Lys	Ile	Val	Val	Ala
		35					40					45			
Asn	Phe	Ser	Ala	Ser	Trp	Cys	Gly	Pro	Cys	Arg	Val	Ile	Ala	Pro	Val
	50					55					60				
Tyr	Ala	Glu	Met	Ser	Lys	Thr	Tyr	Pro	Gln	Leu	Met	Phe	Leu	Thr	Ile
65					70					75					80
Asp	Val	Asp	Asp	Leu	Val	Asp	Phe	Ser	Ser	Thr	Trp	Asp	Ile	Arg	Ala
				85					90					95	
Thr	Pro	Thr	Phe	Phe	Phe	Leu	Lys	Asn	Gly	Gln	Gln	Ile	Asp	Lys	Leu
			100					105					110		
Val	Gly	Ala	Asn	Lys	Pro	Glu	Leu	Glu	Lys	Lys	Val	Gln	Ala	Leu	Gly
		115					120					125			
Asp	Gly	Ser													
		130													

<210> 194
 <211> 144
 <212> PRT
 <213> Trypanosoma brucei brucei

<400> 194

Met	Ser	Gly	Leu	Ala	Lys	Tyr	Leu	Pro	Gly	Ala	Thr	Asn	Leu	Leu	Ser
1				5					10					15	
Lys	Ser	Gly	Glu	Val	Ser	Leu	Gly	Ser	Leu	Val	Gly	Lys	Thr	Val	Phe
			20					25					30		
Leu	Tyr	Phe	Ser	Ala	Ser	Trp	Cys	Pro	Pro	Cys	Arg	Gly	Phe	Thr	Pro
		35					40					45			
Val	Leu	Ala	Glu	Phe	Tyr	Glu	Lys	His	His	Val	Ala	Lys	Asn	Phe	Glu
	50					55					60				
Val	Val	Leu	Ile	Ser	Trp	Asp	Glu	Asn	Glu	Ser	Asp	Phe	His	Asp	Tyr
65					70					75					80
Tyr	Gly	Lys	Met	Pro	Trp	Leu	Ala	Leu	Pro	Phe	Asp	Gln	Arg	Ser	Thr
			85						90					95	
Val	Ser	Glu	Leu	Gly	Lys	Thr	Phe	Gly	Val	Glu	Ser	Ile	Pro	Thr	Leu
			100					105					110		
Ile	Thr	Ile	Asn	Ala	Asp	Thr	Gly	Ala	Ile	Ile	Gly	Thr	Gln	Ala	Arg
		115					120					125			
Thr	Arg	Val	Ile	Glu	Asp	Pro	Asp	Gly	Ala	Asn	Phe	Pro	Trp	Pro	Asn
		130				135					140				

<210> 195
 <211> 333
 <212> PRT
 <213> Arabidopsis thaliana

<400> 195

Met	Asn	Gly	Leu	Glu	Thr	His	Asn	Thr	Arg	Leu	Cys	Ile	Val	Gly	Ser
1				5					10					15	
Gly	Pro	Ala	Ala	His	Thr	Ala	Ala	Ile	Tyr	Ala	Ala	Arg	Ala	Glu	Leu

Lys	Pro	Leu	20	Phe	Glu	Gly	25	Trp	Met	Ala	Asn	Asp	Ile	30	Ala	Pro	Gly
		35					40						45				
Gly	Gln	Leu	Thr	Thr	Thr	Thr	Asp	Val	Glu	Asn	Phe	Pro	Gly	Phe	Pro		
	50					55					60						
Glu	Gly	Ile	Leu	Gly	Val	Glu	Leu	Thr	Asp	Lys	Phe	Arg	Lys	Gln	Ser		
65					70					75					80		
Glu	Arg	Phe	Gly	Thr	Thr	Ile	Phe	Thr	Glu	Thr	Val	Thr	Lys	Val	Asp		
				85					90					95			
Phe	Ser	Ser	Lys	Pro	Phe	Lys	Leu	Phe	Thr	Asp	Ser	Lys	Ala	Ile	Leu		
			100					105					110				
Ala	Asp	Ala	Val	Ile	Leu	Ala	Thr	Gly	Ala	Val	Ala	Lys	Arg	Leu	Ser		
		115					120					125					
Phe	Val	Gly	Ser	Gly	Glu	Ala	Ser	Gly	Gly	Phe	Trp	Asn	Arg	Gly	Ile		
	130					135					140						
Ser	Ala	Cys	Ala	Val	Cys	Asp	Gly	Ala	Ala	Pro	Ile	Phe	Arg	Asn	Lys		
145					150					155					160		
Pro	Leu	Ala	Val	Ile	Gly	Gly	Gly	Asp	Ser	Ala	Met	Glu	Glu	Ala	Asn		
				165				170						175			
Phe	Leu	Thr	Lys	Tyr	Gly	Ser	Lys	Val	Tyr	Ile	Ile	His	Arg	Arg	Asp		
			180					185					190				
Ala	Phe	Arg	Ala	Ser	Lys	Ile	Met	Gln	Gln	Arg	Ala	Leu	Ser	Asn	Pro		
		195					200					205					
Lys	Ile	Asp	Val	Ile	Trp	Asn	Ser	Ser	Val	Val	Glu	Ala	Tyr	Gly	Asp		
	210					215					220						
Gly	Glu	Arg	Asp	Val	Leu	Gly	Gly	Leu	Lys	Val	Lys	Asn	Val	Val	Thr		
225					230					235					240		
Gly	Asp	Val	Ser	Asp	Leu	Lys	Val	Ser	Gly	Leu	Phe	Phe	Ala	Ile	Gly		
				245					250					255			
His	Glu	Pro	Ala	Thr	Lys	Phe	Leu	Asp	Gly	Gly	Val	Glu	Leu	Asp	Ser		
			260					265					270				
Asp	Gly	Tyr	Val	Val	Thr	Lys	Pro	Gly	Thr	Thr	Gln	Thr	Ser	Val	Pro		
		275					280					285					
Gly	Val	Phe	Ala	Ala	Gly	Asp	Val	Gln	Asp	Lys	Lys	Tyr	Arg	Gln	Ala		
	290					295					300						
Ile	Thr	Ala	Ala	Gly	Thr	Gly	Cys	Met	Ala	Ala	Leu	Asp	Ala	Glu	His		
305					310					315					320		
Tyr	Leu	Gln	Glu	Ile	Gly	Ser	Gln	Gln	Gly	Lys	Ser	Asp					
				325					330								

<210> 196

<211> 383

<212> PRT

<213> Arabidopsis thaliana

<400> 196

Met	Cys	Trp	Ile	Ser	Met	Ser	Gln	Ser	Arg	Phe	Ile	Ile	Lys	Ser	Leu		
1				5					10					15			
Phe	Ser	Thr	Ala	Gly	Gly	Phe	Leu	Leu	Gly	Ser	Ala	Leu	Ser	Asn	Pro		
			20					25					30				
Pro	Ser	Leu	Ala	Thr	Ala	Phe	Ser	Ser	Ser	Ser	Ser	Ser	Ser	Ser	Ala		
		35					40					45					
Ala	Ala	Ala	Val	Asp	Met	Glu	Thr	His	Lys	Thr	Lys	Val	Cys	Ile	Val		
	50					55					60						
Gly	Ser	Gly	Pro	Ala	Ala	His	Thr	Ala	Ala	Ile	Tyr	Ala	Ser	Arg	Ala		
65					70					75					80		
Glu	Leu	Lys	Pro	Leu	Leu	Phe	Glu	Gly	Trp	Met	Ala	Asn	Asp	Ile	Ala		
				85					90					95			
Pro	Gly	Gly	Gln	Leu	Thr	Thr	Thr	Thr	Asp	Val	Glu	Asn	Phe	Pro	Gly		
			100					105					110				
Phe	Pro	Glu	Gly	Ile	Leu	Gly	Ile	Asp	Ile	Val	Glu	Lys	Phe	Arg	Lys		
		115					120					125					
Gln	Ser	Glu	Arg	Phe	Gly	Thr	Thr	Ile	Phe	Thr	Glu	Thr	Val	Asn	Lys		
	130					135					140						
Val	Asp	Phe	Ser	Ser	Lys	Pro	Phe	Lys	Leu	Phe	Thr	Asp	Ser	Arg	Thr		
145					150				155						160		

Val	Leu	Ala	Asp	Ser	Val	Ile	Ile	Ser	Thr	Gly	Ala	Val	Ala	Lys	Arg
				165					170					175	
Leu	Ser	Phe	Thr	Gly	Ser	Gly	Glu	Gly	Asn	Gly	Gly	Phe	Trp	Asn	Arg
			180					185					190		
Gly	Ile	Ser	Ala	Cys	Ala	Val	Cys	Asp	Gly	Ala	Ala	Pro	Ile	Phe	Arg
		195					200					205			
Asn	Lys	Pro	Leu	Val	Val	Ile	Gly	Gly	Gly	Asp	Ser	Ala	Met	Glu	Glu
	210					215					220				
Ala	Asn	Phe	Leu	Thr	Lys	Tyr	Gly	Ser	Lys	Val	Tyr	Ile	Ile	His	Arg
225					230					235					240
Arg	Asp	Thr	Phe	Arg	Ala	Ser	Lys	Ile	Met	Gln	Gln	Arg	Ala	Leu	Ser
				245					250					255	
Asn	Pro	Lys	Ile	Glu	Val	Ile	Trp	Asn	Ser	Ala	Val	Val	Glu	Ala	Tyr
			260					265					270		
Gly	Asp	Glu	Asn	Gly	Arg	Val	Leu	Gly	Gly	Leu	Lys	Val	Lys	Asn	Val
		275					280					285			
Val	Thr	Gly	Asp	Val	Ser	Asp	Leu	Lys	Val	Ser	Gly	Leu	Phe	Phe	Ala
	290					295					300				
Ile	Gly	His	Glu	Pro	Ala	Thr	Lys	Phe	Leu	Asp	Gly	Gln	Leu	Glu	Leu
305					310					315					320
Asp	Glu	Asp	Gly	Tyr	Val	Val	Thr	Lys	Pro	Gly	Thr	Thr	Lys	Thr	Ser
				325					330					335	
Val	Val	Gly	Val	Phe	Ala	Ala	Gly	Asp	Val	Gln	Asp	Lys	Lys	Tyr	Arg
			340					345					350		
Gln	Ala	Ile	Thr	Ala	Ala	Gly	Thr	Gly	Cys	Met	Ala	Ala	Leu	Asp	Ala
		355					360					365			
Glu	His	Tyr	Leu	Gln	Glu	Ile	Gly	Ser	Gln	Glu	Gly	Lys	Ser	Asp	
	370					375					380				

<210> 197
 <211> 323
 <212> PRT
 <213> Aquifex aeolicus

<400> 197

Met	Ala	Val	Ser	Leu	Met	Gln	Gln	Pro	Asp	Lys	Val	Tyr	Asp	Val	Ile
1				5					10					15	
Ile	Ile	Gly	Ala	Gly	Pro	Ala	Gly	Thr	Thr	Ala	Ala	Ile	Tyr	Thr	Ala
			20					25					30		
Arg	Ala	Gly	Trp	Lys	Thr	Leu	Val	Leu	Tyr	Arg	Ala	Glu	Ala	Asp	Gly
		35					40					45			
Ala	Leu	Gly	Val	Thr	Gln	Lys	Ile	Glu	Asn	Tyr	Pro	Gly	Val	Pro	Gly
	50					55					60				
Pro	Leu	Ser	Gly	Tyr	Glu	Leu	Leu	Lys	Ile	Met	Arg	Glu	Gln	Ala	Lys
65					70				75						80
Ser	Phe	Gly	Ala	Glu	Phe	Val	Arg	Gly	Lys	Val	Ile	Ala	Thr	Asp	Leu
				85					90					95	
Asn	Ser	Asp	Pro	Lys	Lys	Val	Tyr	Thr	Ile	Asp	Gly	Arg	Glu	Phe	Arg
			100					105					110		
Gly	Lys	Thr	Ile	Ile	Val	Ala	Ser	Gly	Ala	Met	Glu	Arg	Ala	Asn	Lys
		115					120					125			
Phe	Lys	Gly	Glu	Glu	Glu	Phe	Leu	Gly	Arg	Gly	Val	Ser	Tyr	Cys	Gly
	130					135					140				
Val	Cys	Asp	Ala	Ala	Phe	Phe	Lys	Asp	Gln	Pro	Val	Ala	Val	Ile	Gly
145					150					155					160
Asp	Asp	Asp	Tyr	Ala	Ile	Glu	Glu	Ala	Glu	Phe	Ile	Ala	Arg	Phe	Ala
				165					170					175	
Asn	Lys	Val	Phe	Phe	Val	Val	Pro	Gly	Ser	Lys	Ile	Lys	Ala	Pro	Pro
			180					185					190		
Glu	Val	Ile	Glu	His	Phe	Glu	Lys	Leu	Pro	Asn	Val	Glu	Ile	Leu	Leu
		195					200					205			
Arg	His	Arg	Pro	Ile	Glu	Ile	Val	Gly	Asp	Gln	Val	Val	Lys	Gly	Ile
	210					215					220				
Lys	Leu	Lys	Asp	Leu	Glu	Lys	Lys	Glu	Glu	Lys	Leu	Leu	Glu	Val	Asn
225					230					235					240
Gly	Val	Phe	Ile	Phe	Leu	Gly	Gly	Thr	Lys	Pro	Ser	Val	Asp	Phe	Leu

Met	Gly	Gln	Val	245 Glu	Met	Thr	Glu	Gly	250 Asp	Cys	Ile	Val	Val	255 Asn	Glu
Glu	Met	Met	Thr	260 Ser	Val	Pro	Gly	265 Val	Phe	Ala	Ala	Gly	270 Asp	Val	Leu
Cys	Asn	Glu	Val	275 Lys	Gln	Ala	Val	280 Val	Ala	Ala	Ala	Met	Gly	Cys	Lys
Ala	Ala	Leu	Ala	Val	290 Asp	Lys	Phe	Leu	Ser	Gly	Lys	Lys	Lys	Ile	Val
305					310					315					320
Pro	Gln	Trp													

<210> 198
 <211> 315
 <212> PRT
 <213> Bacillus subtilis

Ser	Glu	Glu	Lys	Ile	Tyr	Asp	Val	Ile	Ile	Ile	Gly	Ala	Gly	Pro	Ala
1				5				10						15	
Gly	Met	Thr	Ala	Ala	Val	Tyr	Thr	Ser	Arg	Ala	Asn	Leu	Ser	Thr	Leu
			20					25					30		
Met	Ile	Glu	Arg	Gly	Ile	Pro	Gly	Gly	Gln	Met	Ala	Asn	Thr	Glu	Asp
		35					40					45			
Val	Glu	Asn	Tyr	Pro	Gly	Phe	Glu	Ser	Ile	Leu	Gly	Pro	Glu	Leu	Ser
	50					55					60				
Asn	Lys	Met	Phe	Glu	His	Ala	Lys	Lys	Phe	Gly	Ala	Glu	Tyr	Ala	Tyr
65					70					75					80
Gly	Asp	Ile	Lys	Glu	Val	Ile	Asp	Gly	Lys	Glu	Tyr	Lys	Val	Val	Lys
			85					90						95	
Ala	Gly	Ser	Lys	Glu	Tyr	Lys	Ala	Arg	Ala	Val	Ile	Ile	Ala	Ala	Gly
			100					105					110		
Ala	Glu	Tyr	Lys	Lys	Ile	Gly	Val	Pro	Gly	Glu	Lys	Glu	Leu	Gly	Gly
		115					120					125			
Arg	Gly	Val	Ser	Tyr	Cys	Ala	Val	Cys	Asp	Gly	Ala	Phe	Phe	Lys	Gly
	130					135					140				
Lys	Glu	Leu	Val	Val	Val	Gly	Gly	Gly	Asp	Ser	Ala	Val	Glu	Glu	Gly
145					150					155					160
Val	Tyr	Leu	Thr	Arg	Phe	Ala	Ser	Lys	Val	Thr	Ile	Val	His	Arg	Arg
			165						170					175	
Asp	Lys	Leu	Arg	Ala	Gln	Ser	Ile	Leu	Gln	Ala	Arg	Ala	Phe	Asp	Asn
			180					185					190		
Glu	Lys	Val	Asp	Phe	Leu	Trp	Asn	Lys	Thr	Val	Lys	Glu	Ile	His	Glu
		195					200					205			
Glu	Asn	Gly	Lys	Val	Gly	Asn	Val	Thr	Leu	Val	Asp	Thr	Val	Thr	Gly
	210					215					220				
Glu	Glu	Ser	Glu	Phe	Lys	Thr	Asp	Gly	Val	Phe	Ile	Tyr	Ile	Gly	Met
225					230					235					240
Leu	Pro	Leu	Ser	Lys	Pro	Phe	Glu	Asn	Leu	Gly	Ile	Thr	Asn	Glu	Glu
				245					250					255	
Gly	Tyr	Ile	Glu	Thr	Asn	Asp	Arg	Met	Glu	Thr	Lys	Val	Glu	Gly	Ile
		260						265					270		
Phe	Ala	Ala	Gly	Asp	Ile	Arg	Glu	Lys	Ser	Leu	Arg	Gln	Ile	Val	Thr
		275					280					285			
Ala	Thr	Gly	Asp	Gly	Ser	Ile	Ala	Ala	Gln	Ser	Val	Gln	His	Tyr	Val
	290					295					300				
Glu	Glu	Leu	Gln	Glu	Thr	Leu	Lys	Thr	Leu	Lys					
305					310					315					

<210> 199
 <211> 326
 <212> PRT
 <213> Borrelia burgdorferi

<400> 199

Met Leu Glu Phe Glu Thr Ile Asp Ile Asn Leu Thr Lys Lys Lys Asn
 1 5 10 15
 Leu Ser Gln Lys Glu Val Asp Phe Ile Glu Asp Val Ile Ile Val Gly
 20 25 30
 Ser Gly Pro Ala Gly Leu Thr Ala Gly Ile Tyr Ser Val Met Ser Asn
 35 40 45
 Tyr Lys Ala Ala Ile Leu Glu Gly Pro Glu Pro Gly Gly Gln Leu Thr
 50 55 60
 Thr Thr Thr Glu Val Tyr Asn Tyr Pro Gly Phe Lys Asn Gly Ile Ser
 65 70 75 80
 Gly Arg Asn Leu Met Leu Asn Met Arg Glu Gln Val Val Asn Leu Gly
 85 90 95
 Ala Lys Thr Phe Pro Glu Thr Val Phe Ser Ile Lys Arg Lys Gly Asn
 100 105 110
 Ile Phe Tyr Leu Tyr Thr Glu Asn Tyr Ile Tyr Lys Ser Lys Ala Val
 115 120 125
 Ile Ile Ala Val Gly Ser Lys Pro Lys Lys Leu Glu Thr Leu Lys Asn
 130 135 140
 Ser Gly Leu Phe Trp Asn Lys Gly Ile Ser Val Cys Ala Ile Cys Asp
 145 150 155 160
 Gly His Leu Phe Lys Gly Lys Arg Val Ala Val Ile Gly Gly Gly Asn
 165 170 175
 Thr Ala Leu Ser Glu Ser Ile Tyr Leu Ser Lys Leu Val Asp Lys Val
 180 185 190
 Tyr Leu Ile Val Arg Lys Asn Asn Leu Arg Ala Ile Ala Met Leu Arg
 195 200 205
 Asp Ser Val Ala Lys Leu Pro Asn Ile Glu Ile Leu Tyr Asn Ser Glu
 210 215 220
 Ala Ile Glu Val Asp Gly Lys Ser Ser Val Ser Ser Val Lys Ile Phe
 225 230 235 240
 Asn Lys Lys Asp Asn Val Val Tyr Glu Leu Glu Val Ser Ala Val Phe
 245 250 255
 Met Ala Val Gly Tyr Lys Pro Asn Thr Glu Phe Leu Lys Gly Phe Leu
 260 265 270
 Asp Leu Asp Glu Glu Gly Phe Ile Val Thr Lys Asp Val Val Lys Thr
 275 280 285
 Ser Val Asp Gly Val Phe Ser Cys Gly Asp Val Ser Asn Lys Leu Tyr
 290 295 300
 Ala Gln Ala Ile Thr Ala Ala Ala Glu Gly Phe Ile Ala Ser Val Glu
 305 310 315 320
 Leu Gly Asn Phe Leu Lys
 325

<210> 200
 <211> 319
 <212> PRT
 <213> Buchnera aphidicola

<400> 200
 Met Asp Lys Val Lys His Ser Lys Ile Ile Ile Leu Gly Ser Gly Pro
 1 5 10 15
 Ala Gly Tyr Thr Ala Ala Ile Tyr Ala Ala Arg Ala Asn Leu Asp Pro
 20 25 30
 Phe Leu Ile Thr Gly Thr Asn Lys Gly Gly Gln Leu Met Asn Thr Asn
 35 40 45
 Glu Ile Glu Asn Trp Pro Gly Asp Tyr Asn Lys Ile Ser Gly Ser Glu
 50 55 60
 Leu Met Asn Arg Met Tyr Lys His Ala Ile Glu Leu Lys Thr Lys Val
 65 70 75 80
 Ile Cys Asp Thr Val Ile Ser Val Asn Phe Lys Lys Asn Pro Phe Phe
 85 90 95
 Leu Ile Gly Glu Asn Asn Lys Tyr Thr Ala Asp Ser Val Ile Ile Ala
 100 105 110
 Thr Gly Ala Asn Pro Arg Tyr Leu Gly Leu Gln Ser Glu Ser Leu Phe
 115 120 125
 Lys Gly Lys Gly Val Ser Thr Cys Ala Val Cys Asp Gly Phe Phe Tyr

130	135	140
Lys Asn Lys Glu Val Ala Val Val Gly Gly Gly Asn Thr Ala Ile Glu		
145	150	155
Glu Thr Leu Tyr Leu Ser Asn Phe Val Lys Lys Val His Leu Ile His		
	165	170
Arg Gly Ile Asn Phe Arg Ala Glu Lys Ile Leu Leu Asp Arg Leu Glu		
	180	185
Lys Lys Ile Lys Ser Gln Lys Ile Ile Ile Tyr Leu Asn Ser Ile Val		
	195	200
Lys Asn Ile Leu Gly Asn Ser Ser Gly Val Thr Ala Leu Leu Ile Glu		
	210	215
Gln Lys Asn Ser Lys Glu Lys Thr Glu Ser Lys Ile Gln Val Ser Gly		
225	230	235
Leu Phe Val Ala Ile Gly Tyr Thr Pro Asn Thr Asn Ile Phe Val Asn		
	245	250
Lys Leu Lys Met Lys Asp Gly Tyr Ile Gln Val Thr Arg Gln Glu His		
	260	265
Gly Asn Tyr Thr Gln Thr Ser Ile Pro Gly Ile Phe Ala Ala Gly Asp		
	275	280
Val Ile Asp His Val Tyr Arg Gln Ala Ile Thr Ser Ser Ala Ser Gly		
	290	295
Cys Met Ala Ala Leu Asp Ser Glu Arg Tyr Ile Asn Ser Leu Val		
305	310	315

<210> 201
 <211> 319
 <212> PRT
 <213> Buchnera aphidicola

<400> 201
Met Glu Leu Lys Asn His Lys Lys Ile Ile Ile Leu Gly Ser Gly Pro
1 5 10 15
Ala Gly Tyr Thr Ala Ala Ile Tyr Ser Ser Arg Ala Asn Leu Asn Pro
20 25 30
Leu Leu Ile Thr Gly Ile Asn Lys Gly Gly Gln Leu Met Asn Thr Asn
35 40 45
Glu Ile Glu Asn Trp Pro Gly Asp Phe Lys Lys Ile Thr Gly Pro Glu
50 55 60
Leu Met Asn Arg Met His Glu His Ser Leu Lys Phe Lys Thr Glu Ile
65 70 75 80
Val Tyr Asp Asn Ile Ile Ser Val Glu Phe Lys Lys Lys Pro Phe Phe
85 90 95
Leu Leu Gly Glu Tyr Asn Lys Tyr Thr Cys Asp Ala Val Ile Ile Ala
100 105 110
Thr Gly Ala Asn Pro Arg Tyr Leu Gly Leu Ser Ser Glu Asn Lys Phe
115 120 125
Lys Gly Lys Gly Ile Ser Thr Cys Ala Val Cys Asp Gly Phe Phe Tyr
130 135 140
Lys Asn Lys Glu Ile Ala Val Val Gly Gly Gly Asn Thr Ala Ile Glu
145 150 155 160
Glu Thr Leu Tyr Leu Ser Asn Phe Val Lys Lys Ile Tyr Leu Ile His
165 170 175
Arg Arg Asn Asn Phe Lys Ala Glu Lys Ile Leu Ile Asp Arg Leu Leu
180 185 190
Lys Ile Val Lys Thr Lys Lys Val Ile Leu His Leu Asn Ser Thr Ile
195 200 205
Glu Asp Ile Leu Gly Asn Asn Lys Gly Val Thr His Leu Leu Ile Lys
210 215 220
Asn Lys Asn Leu Lys Glu Lys Lys Lys Leu Lys Ile Ala Val Ser Gly
225 230 235 240
Leu Phe Val Ala Ile Gly Tyr Ile Pro Asn Thr Asp Ile Phe Thr Asp
245 250 255
Gln Leu Lys Met Lys Asp Gly Tyr Ile Lys Ile Lys Lys Gly Thr His
260 265 270
Gly Asn Tyr Thr Gln Thr Asn Ile Pro Gly Val Phe Ala Ala Gly Asp
275 280 285

Val	Ile	Asp	His	Val	Tyr	Arg	Gln	Ala	Ile	Thr	Ser	Ser	Ala	Ser	Gly
	290					295					300				
Cys	Met	Ala	Ala	Leu	Asp	Ser	Glu	Arg	Tyr	Leu	Asn	Ser	Leu	Ser	
305					310					315					

<210> 202
 <211> 312
 <212> PRT
 <213> Chlamydia muridarum

<400> 202

Met	Thr	His	Val	Lys	Leu	Ala	Ile	Ile	Gly	Ser	Gly	Pro	Ala	Gly	Tyr
1				5					10					15	
Thr	Ala	Ala	Ile	Tyr	Ala	Ser	Arg	Ala	Leu	Leu	Thr	Pro	Ile	Leu	Phe
			20					25					30		
Glu	Gly	Phe	Phe	Ser	Gly	Ile	Ala	Gly	Gly	Gln	Leu	Met	Thr	Thr	Thr
		35					40					45			
Glu	Val	Glu	Asn	Phe	Pro	Gly	Phe	Pro	Gln	Gly	Val	Leu	Gly	His	Gln
	50					55					60				
Leu	Met	Glu	Asn	Met	Lys	Met	Gln	Ala	Gln	Arg	Phe	Gly	Thr	Gln	Val
65					70					75					80
Ile	Ala	Lys	Asp	Ile	Thr	Ser	Val	Asp	Phe	Ser	Val	Arg	Pro	Phe	Val
				85					90					95	
Leu	Lys	Ser	Gly	Glu	Asp	Thr	Phe	Thr	Cys	Asp	Ala	Cys	Ile	Ile	Ala
			100					105					110		
Thr	Gly	Ala	Ser	Ala	Lys	Arg	Leu	Ser	Ile	Pro	Gly	Ala	Gly	Asp	Asn
		115					120					125			
Glu	Phe	Trp	Gln	Lys	Gly	Val	Thr	Ala	Cys	Ala	Val	Cys	Asp	Gly	Ala
	130				135						140				
Ser	Pro	Ile	Phe	Arg	Asp	Arg	Asp	Leu	Phe	Val	Ile	Gly	Gly	Gly	Asp
145					150					155					160
Ser	Ala	Leu	Glu	Glu	Ala	Met	Phe	Leu	Thr	Arg	Tyr	Gly	Lys	Arg	Val
				165					170					175	
Phe	Val	Val	His	Arg	Arg	Asp	Thr	Leu	Arg	Ala	Ser	Lys	Ala	Met	Val
			180					185					190		
Asn	Lys	Ala	Gln	Ala	Asn	Glu	Lys	Ile	Val	Phe	Leu	Trp	Asn	Ser	Glu
		195					200					205			
Val	Val	Lys	Ile	Leu	Gly	Asp	Ser	Leu	Val	Arg	Ser	Ile	Asp	Ile	Phe
	210					215					220				
Asn	Asn	Val	Glu	Lys	Thr	Thr	Val	Thr	Met	Glu	Ala	Ala	Gly	Val	Phe
225					230					235					240
Phe	Ala	Ile	Gly	His	Gln	Pro	Asn	Thr	Ala	Phe	Leu	Gly	Gly	Gln	Leu
				245					250					255	
Ser	Leu	Asp	Glu	Asn	Gly	Tyr	Ile	Ile	Thr	Glu	Lys	Gly	Ser	Ser	Arg
		260						265					270		
Thr	Ser	Val	Pro	Gly	Val	Phe	Ala	Ala	Gly	Asp	Val	Gln	Asp	Lys	Tyr
		275					280					285			
Tyr	Arg	Gln	Ala	Ile	Thr	Ser	Ala	Gly	Ser	Gly	Cys	Met	Ala	Ala	Leu
	290					295					300				
Asp	Ala	Glu	Arg	Phe	Leu	Glu	Lys								
305					310										

<210> 203
 <211> 311
 <212> PRT
 <213> Chlamydia pneumoniae

<400> 203

Met	Ile	His	Ser	Arg	Leu	Ile	Ile	Ile	Gly	Ser	Gly	Pro	Ser	Gly	Tyr
1				5					10					15	
Thr	Ala	Ala	Ile	Tyr	Ala	Ser	Arg	Ala	Leu	Leu	His	Pro	Leu	Leu	Phe
			20					25					30		
Glu	Gly	Phe	Phe	Ser	Gly	Ile	Ser	Gly	Gly	Gln	Leu	Met	Thr	Thr	Thr
		35					40					45			
Glu	Val	Glu	Asn	Phe	Pro	Gly	Phe	Pro	Glu	Gly	Ile	Leu	Gly	Pro	Lys

50	55	60			
Leu Met Asn Asn Met Lys	Glu Gln Ala Val Arg Phe Gly Thr Lys Thr				
65	70	75	80		
Leu Ala Gln Asp Ile Ile Ser Val Asp Phe Ser Val Arg Pro Phe Ile					
	85	90	95		
Leu Lys Ser Lys Glu Glu Thr Tyr Ser Cys Asp Ala Cys Ile Ile Ala					
	100	105	110		
Thr Gly Ala Ser Ala Lys Arg Leu Glu Ile Pro Gly Ala Gly Asn Asp					
	115	120	125		
Glu Phe Trp Gln Lys Gly Val Thr Ala Cys Ala Val Cys Asp Gly Ala					
	130	135	140		
Ser Pro Ile Phe Lys Asn Lys Asp Leu Tyr Val Ile Gly Gly Gly Asp					
145	150	155	160		
Ser Ala Leu Glu Glu Ala Leu Tyr Leu Thr Arg Tyr Gly Ser His Val					
	165	170	175		
Tyr Val Val His Arg Arg Asp Lys Leu Arg Ala Ser Lys Ala Met Glu					
	180	185	190		
Ala Arg Ala Gln Asn Asn Glu Lys Ile Thr Phe Leu Trp Asn Ser Glu					
	195	200	205		
Ile Val Lys Ile Ser Gly Asp Ser Ile Val Arg Ser Val Asp Ile Lys					
	210	215	220		
Asn Val Gln Thr Gln Glu Ile Thr Thr Arg Glu Ala Ala Gly Val Phe					
225	230	235	240		
Phe Ala Ile Gly His Lys Pro Asn Thr Asp Phe Leu Gly Gly Gln Leu					
	245	250	255		
Thr Leu Asp Glu Ser Gly Tyr Ile Val Thr Glu Lys Gly Thr Ser Lys					
	260	265	270		
Thr Ser Val Pro Gly Val Phe Ala Ala Gly Asp Val Gln Asp Lys Tyr					
	275	280	285		
Tyr Arg Gln Ala Val Thr Ser Ala Gly Ser Gly Cys Ile Ala Ala Leu					
	290	295	300		
Asp Ala Glu Arg Phe Leu Gly					
305	310				

<210> 204
 <211> 312
 <212> PRT
 <213> Chlamydia trachomatis

<400> 204

Met Thr His Ala Lys Leu Val Ile Ile Gly Ser Gly Pro Ala Gly Tyr					
1	5	10	15		
Thr Ala Ala Ile Tyr Ala Ser Arg Ala Leu Leu Thr Pro Val Leu Phe					
	20	25	30		
Glu Gly Phe Phe Ser Gly Ile Ala Gly Gly Gln Leu Met Thr Thr Thr					
	35	40	45		
Glu Val Glu Asn Phe Pro Gly Phe Pro Glu Gly Val Leu Gly His Gln					
	50	55	60		
Leu Met Asp Leu Met Lys Thr Gln Ala Gln Arg Phe Gly Thr Gln Val					
65	70	75	80		
Leu Ser Lys Asp Ile Thr Ala Val Asp Phe Ser Val Arg Pro Phe Val					
	85	90	95		
Leu Lys Ser Gly Lys Glu Thr Phe Thr Cys Asp Ala Cys Ile Ile Ala					
	100	105	110		
Thr Gly Ala Ser Ala Lys Arg Leu Ser Ile Pro Gly Ala Gly Asp Asn					
	115	120	125		
Glu Phe Trp Gln Lys Gly Val Thr Ala Cys Ala Val Cys Asp Gly Ala					
	130	135	140		
Ser Pro Ile Phe Arg Asp Lys Asp Leu Phe Val Val Gly Gly Gly Asp					
145	150	155	160		
Ser Ala Leu Glu Glu Ala Met Phe Leu Thr Arg Tyr Gly Lys Arg Val					
	165	170	175		
Phe Val Val His Arg Arg Asp Thr Leu Arg Ala Ser Lys Val Met Val					
	180	185	190		
Asn Lys Ala Gln Ala Asn Glu Lys Ile Phe Phe Leu Trp Asn Ser Glu					
	195	200	205		

Ile	Val	Lys	Ile	Ser	Gly	Asp	Thr	Leu	Val	Arg	Ser	Ile	Asp	Ile	Tyr
	210					215					220				
Asn	Asn	Val	Asp	Glu	Thr	Thr	Thr	Thr	Met	Glu	Ala	Ala	Gly	Val	Phe
225					230					235					240
Phe	Ala	Ile	Gly	His	Gln	Pro	Asn	Thr	Ala	Phe	Leu	Gly	Gly	Gln	Val
				245					250					255	
Ala	Leu	Asp	Glu	Asn	Gly	Tyr	Ile	Ile	Thr	Glu	Lys	Gly	Ser	Ser	Arg
			260					265					270		
Thr	Ser	Val	Pro	Gly	Val	Phe	Ala	Ala	Gly	Asp	Val	Gln	Asp	Lys	Tyr
		275					280					285			
Tyr	Arg	Gln	Ala	Ile	Thr	Ser	Ala	Gly	Ser	Gly	Cys	Met	Ala	Ala	Leu
	290					295					300				
Asp	Ala	Glu	Arg	Phe	Leu	Glu	Asn								
305					310										

<210> 205
 <211> 315
 <212> PRT
 <213> Clostridium litorale

<400> 205

Met	Glu	Asn	Val	Tyr	Asp	Ile	Ala	Ile	Ile	Gly	Ser	Gly	Pro	Ala	Gly
1				5					10					15	
Leu	Ala	Ala	Ala	Leu	Tyr	Gly	Ala	Arg	Ala	Lys	Met	Lys	Thr	Leu	Leu
			20					25					30		
Leu	Glu	Gly	Met	Lys	Val	Gly	Gly	Gln	Ile	Val	Ile	Thr	His	Glu	Val
		35				40						45			
Ala	Asn	Tyr	Pro	Gly	Ser	Val	Pro	Glu	Ala	Thr	Gly	Pro	Ser	Leu	Ile
	50					55					60				
Gly	Arg	Met	Glu	Glu	Gln	Val	Glu	Glu	Phe	Gly	Ala	Glu	Arg	Val	Met
65					70				75						80
Asp	Asn	Ile	Val	Asp	Val	Asp	Phe	Thr	Asp	Lys	Ile	Lys	Val	Leu	Lys
			85					90						95	
Gly	Ala	Lys	Gly	Glu	Tyr	Lys	Ala	Lys	Ala	Val	Ile	Val	Ala	Thr	Gly
			100				105						110		
Ala	Ser	Pro	Lys	Leu	Ala	Gly	Cys	Pro	Gly	Glu	Lys	Glu	Leu	Thr	Gly
		115					120					125			
Lys	Gly	Val	Ser	Tyr	Cys	Ala	Thr	Cys	Asp	Ala	Asp	Phe	Phe	Glu	Asp
	130					135					140				
Met	Glu	Val	Phe	Val	Ile	Gly	Gly	Gly	Asp	Thr	Ala	Val	Glu	Glu	Ala
145					150				155						160
Met	Phe	Leu	Thr	Lys	Phe	Ala	Arg	Lys	Val	Thr	Ile	Val	His	Arg	Arg
			165					170					175		
Ala	Glu	Leu	Arg	Ala	Ala	Lys	Ser	Ile	Gln	Glu	Lys	Ala	Phe	Lys	Asn
			180					185					190		
Glu	Lys	Leu	Asn	Phe	Met	Trp	Asn	Thr	Val	Ile	Glu	Glu	Ile	Lys	Gly
		195					200					205			
Asp	Gly	Ile	Val	Glu	Ser	Ala	Val	Phe	Lys	Asn	Arg	Glu	Thr	Gly	Glu
	210					215					220				
Val	Thr	Glu	Phe	Val	Ala	Pro	Glu	Glu	Asp	Gly	Thr	Phe	Gly	Ile	Phe
225					230					235					240
Val	Phe	Ile	Gly	Tyr	Asp	Pro	Lys	Ser	Ala	Leu	Val	Glu	Gly	Lys	Leu
			245						250					255	
Glu	Leu	Asp	Glu	Thr	Gly	Tyr	Ile	Pro	Thr	Asp	Asp	Asn	Met	Lys	Thr
			260					265					270		
Asn	Val	Glu	Gly	Val	Phe	Ala	Ala	Gly	Asp	Ile	Arg	Val	Lys	Ser	Leu
		275					280					285			
Arg	Gln	Val	Val	Thr	Ala	Thr	Ala	Asp	Gly	Ala	Ile	Ala	Ala	Val	Gln
	290					295					300				
Ala	Glu	Lys	Tyr	Ile	Glu	Glu	Leu	Phe	Ala	Glu					
305					310					315					

<210> 206
 <211> 321
 <212> PRT

<213> Coxiella burnetii

<400> 206

Met	Asn	Lys	Pro	Gln	His	His	Ser	Leu	Ile	Ile	Leu	Gly	Ser	Gly	Pro
1				5					10					15	
Ala	Gly	Tyr	Thr	Asp	Ala	Ile	Tyr	Val	Ala	Arg	Ala	Asn	Leu	Lys	Pro
			20					25					30		
Ile	Met	Ile	Thr	Gly	Met	Glu	Gln	Gly	Gly	Gln	Leu	Met	Thr	Thr	Thr
		35					40					45			
Asp	Val	Ala	Asn	Trp	Pro	Gly	Glu	Ala	Pro	Gly	Leu	Gln	Gly	Pro	Lys
	50					55					60				
Leu	Leu	Glu	Arg	Met	Gln	Lys	His	Ala	Gly	Gly	Ala	Leu	Asn	Thr	Gln
65					70				75						80
Phe	Ile	Phe	Asp	His	Ile	Asn	Lys	Pro	Asp	Leu	Asn	Pro	Arg	Pro	Phe
			85						90				95		
Leu	Leu	Gln	Gly	Asp	Asn	Ala	Thr	Tyr	Ser	Cys	Asp	Ala	Leu	Ile	Ile
			100					105					110		
Ala	Thr	Gly	Ala	Ser	Ala	Arg	Tyr	Leu	Gly	Leu	Pro	Ser	Glu	Lys	Pro
		115					120					125			
Tyr	Met	Gly	Lys	Gly	Val	Ser	Ala	Cys	Ala	Thr	Cys	Asp	Gly	Phe	Phe
	130					135					140				
Tyr	Arg	Ala	Lys	Lys	Val	Ala	Val	Val	Gly	Gly	Gly	Asn	Thr	Ser	Val
145					150				155						160
Glu	Glu	Ala	Leu	Tyr	Leu	Ser	His	Ile	Ala	Ser	His	Val	Thr	Leu	Ile
			165					170					175		
His	Arg	Arg	Asp	Lys	Leu	Arg	Ala	Glu	Lys	Met	Leu	Ser	Ala	Gln	Leu
			180					185					190		
Ile	Lys	Lys	Val	Glu	Glu	Gly	Lys	Val	Ala	Ile	Val	Trp	Ser	His	Val
		195					200					205			
Ile	Glu	Glu	Val	Leu	Gly	Asp	Asp	Gln	Gly	Val	Thr	Gly	Val	His	Leu
	210				215						220				
Lys	His	Val	Lys	Glu	Glu	Lys	Thr	Gln	Asp	Leu	Thr	Ile	Asp	Gly	Leu
225				230					235						240
Phe	Ile	Ala	Ile	Gly	His	Asp	Pro	Asn	Thr	Lys	Ile	Phe	Lys	Glu	Gln
			245					250					255		
Leu	Glu	Met	Asp	Glu	Ala	Gly	Tyr	Leu	Arg	Ala	Lys	Ser	Gly	Leu	Gln
			260					265					270		
Gly	Asn	Ala	Thr	Ala	Thr	Asn	Ile	Pro	Gly	Val	Phe	Pro	Ala	Val	Val
		275					280					285			
Val	Arg	Gly	Gln	Leu	Tyr	Arg	Gln	Thr	Ile	Ala	Ala	Ala	Gly	Met	Gly
	290					295					300				
Cys	Met	Pro	Ala	Leu	Asp	Ala	Glu	Arg	Tyr	Leu	Asp	Ser	Leu	Asn	Gln
305					310					315					320
Ala															

<210> 207

<211> 320

<212> PRT

<213> Escherichia coli

<400> 207

Gly	Thr	Thr	Lys	His	Ser	Lys	Leu	Leu	Ile	Leu	Gly	Ser	Gly	Pro	Ala
1				5					10					15	
Gly	Tyr	Thr	Ala	Ala	Val	Tyr	Ala	Ala	Arg	Ala	Asn	Leu	Gln	Pro	Val
			20					25					30		
Leu	Ile	Thr	Gly	Met	Glu	Lys	Gly	Gly	Gln	Leu	Thr	Thr	Thr	Thr	Glu
		35					40					45			
Val	Glu	Asn	Trp	Pro	Gly	Asp	Pro	Asn	Asp	Leu	Thr	Gly	Pro	Leu	Leu
	50					55					60				
Met	Glu	Arg	Met	His	Glu	His	Ala	Thr	Lys	Phe	Glu	Thr	Glu	Ile	Ile
65				70					75						80
Phe	Asp	His	Ile	Asn	Lys	Val	Asp	Leu	Gln	Asn	Arg	Pro	Phe	Arg	Leu
			85						90				95		
Asn	Gly	Asp	Asn	Gly	Glu	Tyr	Thr	Cys	Asp	Ala	Leu	Ile	Ile	Ala	Thr
			100					105					110		

Gly	Ala	Ser	Ala	Arg	Tyr	Leu	Gly	Leu	Pro	Ser	Glu	Glu	Ala	Phe	Lys
		115					120					125			
Gly	Arg	Gly	Val	Ser	Ala	Cys	Ala	Thr	Cys	Asp	Gly	Phe	Phe	Tyr	Arg
	130					135					140				
Asn	Gln	Lys	Val	Ala	Val	Ile	Gly	Gly	Gly	Asn	Thr	Ala	Val	Glu	Glu
145					150					155					160
Ala	Leu	Tyr	Leu	Ser	Asn	Ile	Ala	Ser	Glu	Val	His	Leu	Ile	His	Arg
				165					170					175	
Arg	Asp	Gly	Phe	Arg	Ala	Glu	Lys	Ile	Leu	Ile	Lys	Arg	Leu	Met	Asp
			180					185					190		
Lys	Val	Glu	Asn	Gly	Asn	Ile	Ile	Leu	His	Thr	Asn	Arg	Thr	Leu	Glu
		195					200					205			
Glu	Val	Thr	Gly	Asp	Gln	Met	Gly	Val	Thr	Gly	Val	Arg	Leu	Arg	Asp
	210					215					220				
Thr	Gln	Asn	Ser	Asp	Asn	Ile	Glu	Ser	Leu	Asp	Val	Ala	Gly	Leu	Phe
225					230					235					240
Val	Ala	Ile	Gly	His	Ser	Pro	Asn	Thr	Ala	Ile	Phe	Glu	Gly	Gln	Leu
				245					250					255	
Glu	Leu	Glu	Asn	Gly	Tyr	Ile	Lys	Val	Gln	Ser	Gly	Ile	His	Gly	Asn
			260					265					270		
Ala	Thr	Gln	Thr	Ser	Ile	Pro	Gly	Val	Phe	Ala	Ala	Gly	Asp	Val	Met
		275					280					285			
Asp	His	Ile	Tyr	Arg	Gln	Ala	Ile	Thr	Ser	Ala	Gly	Thr	Gly	Cys	Met
	290					295					300				
Ala	Ala	Leu	Asp	Ala	Glu	Arg	Tyr	Leu	Asp	Gly	Leu	Ala	Asp	Ala	Lys
305					310					315					320

<210> 208

<211> 315

<212> PRT

<213> Eubacterium acidaminophilum

<400> 208

Met	Glu	Asn	Val	Tyr	Asp	Leu	Ala	Ile	Ile	Gly	Ser	Gly	Pro	Ala	Gly
1				5				10						15	
Leu	Ala	Ala	Ala	Leu	Tyr	Gly	Ala	Arg	Ala	Lys	Met	Lys	Thr	Ile	Met
			20					25					30		
Ile	Glu	Gly	Gln	Lys	Val	Gly	Gly	Gln	Ile	Val	Ile	Thr	His	Glu	Val
		35				40						45			
Ala	Asn	Tyr	Pro	Gly	Ser	Val	Arg	Glu	Ala	Thr	Gly	Pro	Ser	Leu	Ile
	50				55						60				
Glu	Arg	Met	Glu	Glu	Gln	Ala	Asn	Glu	Phe	Gly	Ala	Glu	Lys	Val	Met
65					70					75					80
Asp	Lys	Ile	Val	Asp	Val	Asp	Leu	Asp	Gly	Lys	Ile	Lys	Val	Ile	Lys
				85					90					95	
Gly	Glu	Lys	Ala	Glu	Tyr	Lys	Ala	Lys	Ser	Val	Ile	Leu	Ala	Thr	Gly
			100					105					110		
Ala	Ala	Pro	Arg	Leu	Ala	Gly	Cys	Pro	Gly	Glu	Gln	Glu	Leu	Thr	Gly
		115					120					125			
Lys	Gly	Val	Ser	Tyr	Cys	Ala	Thr	Cys	Asp	Ala	Asp	Phe	Phe	Glu	Asp
	130					135					140				
Met	Glu	Val	Phe	Val	Val	Gly	Gly	Gly	Asp	Thr	Ala	Val	Glu	Glu	Ala
145					150					155					160
Met	Tyr	Leu	Ala	Lys	Phe	Ala	Arg	Lys	Val	Thr	Ile	Val	His	Arg	Arg
				165					170					175	
Asp	Glu	Leu	Arg	Ala	Ala	Lys	Ser	Ile	Gln	Glu	Lys	Ala	Phe	Lys	Asn
			180					185					190		
Pro	Lys	Leu	Asp	Phe	Met	Trp	Asn	Ser	Ala	Ile	Glu	Glu	Ile	Lys	Gly
		195					200					205			
Asp	Gly	Ile	Val	Glu	Ser	Ala	Val	Phe	Lys	Asn	Leu	Val	Thr	Gly	Glu
	210					215					220				
Thr	Thr	Glu	Tyr	Phe	Ala	Asn	Glu	Glu	Asp	Gly	Thr	Phe	Gly	Ile	Phe
225					230					235					240
Val	Phe	Ile	Gly	Tyr	Ile	Pro	Lys	Ser	Asp	Val	Phe	Lys	Gly	Lys	Ile
				245					250					255	
Thr	Leu	Asp	Asp	Ala	Gly	Tyr	Ile	Ile	Thr	Asp	Asp	Asn	Met	Lys	Thr

Asn	Val	Glu	260 Gly	Val	Phe	Ala	Ala	265 Gly	Asp	Ile	Arg	Val	270 Lys	Ser	Leu
Arg	Gln	Val	275 Val	Thr	Ala	Cys	Ala	280 Asp	Gly	Ala	Ile	Ala	285 Ala	Thr	Gln
Ala	Glu	Lys	290 Tyr	Val	Glu	Ala	Asn	295 Phe	Glu	Glu			300		
305					310					315					

<210> 209
 <211> 318
 <212> PRT
 <213> Haemophilus influenzae

Met	Ser	Asp	Ile	Lys	His	Ala	Lys	Leu	Leu	Ile	Leu	Gly	Ser	Gly	Pro
1				5				10						15	
Ala	Gly	Tyr	Thr	Ala	Ala	Ile	Tyr	Ala	Ala	Arg	Ala	Asn	Leu	Lys	Pro
			20					25					30		
Val	Leu	Val	Thr	Gly	Leu	Gln	Gln	Gly	Gly	Gln	Leu	Thr	Thr	Thr	Asp
		35				40						45			
Glu	Ile	Glu	Asn	Trp	Pro	Gly	Asp	Phe	Glu	Met	Thr	Thr	Gly	Ser	Gly
50						55					60				
Leu	Met	Gln	Arg	Met	Leu	Gln	His	Ala	Glu	Lys	Phe	Glu	Thr	Glu	Ile
65					70					75					80
Val	Phe	Asp	His	Ile	Asn	Arg	Val	Asp	Leu	Ser	Ser	Arg	Pro	Phe	Lys
			85					90						95	
Leu	Phe	Gly	Asp	Val	Gln	Asn	Phe	Thr	Cys	Asp	Ala	Leu	Ile	Ile	Ala
			100					105					110		
Thr	Gly	Ala	Ser	Ala	Arg	Tyr	Ile	Gly	Leu	Pro	Ser	Glu	Glu	Asn	Tyr
		115					120					125			
Lys	Gly	Arg	Gly	Val	Ser	Ala	Cys	Ala	Thr	Cys	Asp	Gly	Phe	Phe	Tyr
	130					135					140				
Arg	Asn	Lys	Pro	Val	Gly	Val	Ile	Gly	Gly	Gly	Asn	Thr	Ala	Val	Glu
145					150					155					160
Glu	Ala	Leu	Tyr	Leu	Ala	Asn	Ile	Ala	Ser	Thr	Val	His	Leu	Ile	His
				165					170					175	
Arg	Arg	Asp	Ser	Phe	Arg	Ala	Glu	Lys	Ile	Leu	Ile	Asp	Arg	Leu	Tyr
			180					185					190		
Lys	Lys	Val	Glu	Glu	Gly	Lys	Ile	Val	Leu	His	Thr	Asp	Arg	Thr	Leu
		195					200					205			
Asp	Glu	Val	Leu	Gly	Asp	Asn	Met	Gly	Val	Thr	Gly	Leu	Arg	Leu	Ala
	210					215					220				
Asn	Thr	Lys	Thr	Gly	Glu	Lys	Glu	Glu	Leu	Lys	Leu	Asp	Gly	Leu	Phe
225					230					235					240
Val	Ala	Ile	Gly	His	Ser	Pro	Asn	Thr	Glu	Ile	Phe	Gln	Gly	Gln	Leu
				245					250					255	
Glu	Leu	Asn	Asn	Gly	Tyr	Ile	Val	Val	Lys	Ser	Gly	Leu	Asp	Gly	Asn
			260					265					270		
Ala	Thr	Ala	Thr	Ser	Val	Glu	Gly	Val	Phe	Ala	Ala	Gly	Asp	Val	Met
		275					280					285			
Asp	His	Asn	Tyr	Arg	Gln	Ala	Ile	Thr	Ser	Ala	Gly	Thr	Gly	Cys	Met
	290				295						300				
Ala	Ala	Leu	Asp	Ala	Glu	Arg	Tyr	Leu	Asp	Ala	Gln	Glu	Ala		
305					310					315					

<210> 210
 <211> 311
 <212> PRT
 <213> Helicobacter pylori

Met	Ile	Asp	Cys	Ala	Ile	Ile	Gly	Gly	Gly	Pro	Ala	Gly	Leu	Ser	Ala
1				5					10					15	
Gly	Leu	Tyr	Ala	Thr	Arg	Gly	Gly	Val	Lys	Asn	Ala	Val	Leu	Phe	Glu
			20					25					30		

Lys	Gly	Met	Pro	Gly	Gly	Gln	Ile	Thr	Gly	Ser	Ser	Glu	Ile	Glu	Asn
		35					40					45			
Tyr	Pro	Gly	Val	Lys	Glu	Val	Val	Ser	Gly	Leu	Asp	Phe	Met	Gln	Pro
	50					55					60				
Trp	Gln	Glu	Gln	Cys	Phe	Arg	Phe	Gly	Leu	Lys	His	Glu	Met	Thr	Ala
65					70					75					80
Ile	Gln	Arg	Val	Ser	Lys	Lys	Gly	Ser	His	Phe	Val	Ile	Leu	Ala	Glu
				85					90					95	
Asp	Gly	Lys	Thr	Phe	Glu	Ala	Lys	Ser	Val	Ile	Ile	Ala	Thr	Gly	Gly
			100					105					110		
Ser	Pro	Lys	Arg	Thr	Gly	Ile	Lys	Gly	Glu	Ser	Glu	Tyr	Trp	Gly	Lys
		115					120					125			
Gly	Val	Ser	Thr	Cys	Ala	Thr	Cys	Asp	Gly	Phe	Phe	Tyr	Lys	Asn	Lys
	130					135					140				
Glu	Val	Ala	Val	Leu	Gly	Gly	Gly	Asp	Thr	Ala	Val	Glu	Glu	Ala	Ile
145					150					155					160
Tyr	Leu	Ala	Asn	Ile	Cys	Lys	Lys	Val	Tyr	Leu	Ile	His	Arg	Arg	Asp
			165						170					175	
Gly	Phe	Arg	Cys	Ala	Pro	Ile	Thr	Leu	Glu	His	Ala	Lys	Asn	Asn	Ser
			180					185					190		
Lys	Ile	Glu	Phe	Leu	Thr	Pro	Tyr	Val	Val	Glu	Glu	Ile	Lys	Gly	Asp
		195					200					205			
Ala	Ser	Gly	Val	Ser	Ser	Leu	Ser	Ile	Lys	Asn	Thr	Ala	Thr	Asn	Glu
	210					215					220				
Lys	Arg	Glu	Leu	Val	Val	Pro	Gly	Leu	Phe	Ile	Phe	Val	Gly	Tyr	Asp
225					230					235					240
Val	Asn	Asn	Ala	Val	Leu	Lys	Gln	Glu	Asp	Asn	Ser	Met	Leu	Cys	Glu
				245					250					255	
Cys	Asp	Glu	Tyr	Gly	Ser	Ile	Val	Val	Asp	Phe	Ser	Met	Lys	Thr	Asn
			260					265					270		
Val	Gln	Gly	Leu	Phe	Ala	Ala	Gly	Asp	Ile	Arg	Ile	Phe	Ala	Pro	Lys
		275					280					285			
Gln	Val	Val	Cys	Ala	Ala	Ser	Asp	Gly	Ala	Thr	Ala	Ala	Leu	Ser	Val
	290					295					300				
Ile	Ser	Tyr	Leu	Glu	His	His									
305					310										

<210> 211
 <211> 311
 <212> PRT
 <213> Helicobacter pylori

<400>	211														
Met	Ile	Asp	Cys	Ala	Ile	Ile	Gly	Gly	Gly	Pro	Ala	Gly	Leu	Ser	Ala
1				5					10					15	
Gly	Leu	Tyr	Ala	Thr	Arg	Gly	Gly	Val	Lys	Asn	Ala	Val	Leu	Phe	Glu
			20					25					30		
Lys	Gly	Met	Pro	Gly	Gly	Gln	Ile	Thr	Gly	Ser	Ser	Glu	Ile	Glu	Asn
		35					40					45			
Tyr	Pro	Gly	Val	Lys	Glu	Val	Val	Ser	Gly	Leu	Asp	Phe	Met	Gln	Pro
	50					55					60				
Trp	Gln	Glu	Gln	Cys	Phe	Arg	Phe	Gly	Leu	Lys	His	Glu	Met	Thr	Ala
65					70					75					80
Val	Gln	Arg	Val	Ser	Lys	Lys	Asp	Ser	His	Phe	Val	Ile	Leu	Ala	Glu
				85					90					95	
Asp	Gly	Lys	Thr	Phe	Glu	Ala	Lys	Ser	Val	Ile	Ile	Ala	Thr	Gly	Gly
			100					105					110		
Ser	Pro	Lys	Arg	Thr	Gly	Ile	Lys	Gly	Glu	Ser	Glu	Tyr	Trp	Gly	Lys
		115					120					125			
Gly	Val	Ser	Thr	Cys	Ala	Thr	Cys	Asp	Gly	Phe	Phe	Tyr	Lys	Asn	Lys
	130					135					140				
Glu	Val	Ala	Val	Leu	Gly	Gly	Gly	Asp	Thr	Ala	Val	Glu	Glu	Ala	Ile
145					150					155					160
Tyr	Leu	Ala	Asn	Ile	Cys	Lys	Lys	Val	Tyr	Leu	Ile	His	Arg	Arg	Asp
			165						170					175	
Gly	Phe	Arg	Cys	Ala	Pro	Ile	Thr	Leu	Glu	His	Ala	Lys	Asn	Asn	Asp

Lys	Ile	Glu	180	Phe	Leu	Thr	Pro	Tyr	185	Val	Val	Glu	Glu	Ile	190	Lys	Gly	Asp
		195		Val	Ser	Ser	Leu	Ser	200	Ile	Lys	Asn	Thr	205	Ala	Thr	Asn	Glu
Ala	Ser	Gly	210				215						220					
Lys	Arg	Glu	225	Leu	Val	Val	Pro	Gly	230	Phe	Phe	Ile	Phe	235	Val	Gly	Tyr	Asp
Val	Asn	Asn	240	Ala	Val	Leu	Lys	Gln	245	Glu	Asp	Asn	Ser	250	Met	Leu	Cys	Lys
Cys	Asp	Glu	255	Tyr	Gly	Ser	Ile	Val	260	Val	Asp	Phe	Ser	265	Met	Lys	Thr	Asn
Val	Gln	Gly	270	Leu	Phe	Ala	Ala	Gly	275	Asp	Ile	Arg	Ile	280	Phe	Ala	Pro	Lys
Gln	Val	Val	285	Cys	Ala	Ala	Ser	Asp	290	Gly	Ala	Thr	Ala	295	Ala	Leu	Ser	Val
Ile	Ser	Tyr	300	Leu	Glu	His	His											
305							310											

<210> 212

<211> 319

<212> PRT

<213> *Listeria monocytogenes*

<400> 212

Met	Ala	Ser	Glu	Glu	Lys	Ile	Tyr	Asp	Val	Ile	Ile	Ile	Gly	Ala	Gly
1				5					10					15	
Pro	Ala	Gly	Met	Thr	Ala	Ala	Leu	Tyr	Thr	Ser	Arg	Ala	Asp	Leu	Asp
			20					25					30		
Thr	Leu	Met	Ile	Glu	Arg	Gly	Val	Pro	Gly	Gly	Gln	Met	Val	Asn	Thr
		35					40					45			
Ala	Glu	Val	Glu	Asn	Tyr	Pro	Gly	Phe	Asp	Ser	Ile	Leu	Gly	Pro	Asp
	50					55					60				
Leu	Ser	Asp	Lys	Met	Leu	Ser	Gly	Ala	Lys	Gln	Phe	Gly	Ala	Glu	Tyr
65				70					75					80	
Ala	Tyr	Gly	Asp	Ile	Lys	Glu	Val	Val	Asp	Gly	Lys	Glu	Phe	Lys	Thr
			85					90					95		
Val	Thr	Ala	Gly	Ser	Lys	Thr	Tyr	Lys	Ala	Arg	Ala	Ile	Ile	Ile	Ala
			100					105					110		
Thr	Gly	Ala	Glu	His	Arg	Lys	Leu	Gly	Ala	Ala	Gly	Glu	Glu	Glu	Leu
		115					120					125			
Ser	Gly	Arg	Gly	Val	Ser	Tyr	Cys	Ala	Val	Cys	Asp	Gly	Ala	Phe	Phe
	130					135					140				
Lys	Asn	Arg	Glu	Leu	Ile	Val	Val	Gly	Gly	Gly	Asp	Ser	Ala	Val	Glu
145				150					155					160	
Glu	Gly	Thr	Tyr	Leu	Thr	Arg	Tyr	Ala	Asp	Lys	Val	Thr	Ile	Val	His
			165					170					175		
Arg	Arg	Asp	Lys	Leu	Arg	Ala	Gln	Gln	Ile	Leu	Gln	Asp	Arg	Ala	Phe
			180					185					190		
Lys	Asp	Glu	Lys	Val	Asp	Phe	Ile	Trp	Asn	Ser	Thr	Val	Glu	Glu	Ile
	195						200					205			
Val	Gly	Asp	Gly	Lys	Lys	Val	Thr	Gly	Ala	Lys	Leu	Val	Ser	Thr	Val
	210					215					220				
Asp	Gly	Ser	Glu	Ser	Ile	Met	Pro	Val	Asp	Gly	Val	Phe	Ile	Tyr	Val
225				230					235					240	
Gly	Leu	Val	Pro	Leu	Thr	Lys	Ala	Phe	Leu	Asn	Leu	Gly	Ile	Thr	Asp
			245					250					255		
Asp	Glu	Gly	Tyr	Ile	Val	Thr	Asp	Glu	Glu	Met	Arg	Thr	Asn	Leu	Pro
		260					265					270			
Gly	Ile	Phe	Ala	Ala	Gly	Asp	Val	Arg	Ala	Lys	Ser	Leu	Arg	Gln	Ile
		275					280					285			
Val	Thr	Ala	Thr	Gly	Asp	Gly	Gly	Leu	Ala	Gly	Gln	Asn	Ala	Gln	Lys
	290					295					300				
Tyr	Val	Glu	Glu	Leu	Lys	Glu	Ser	Leu	Glu	Ala	Glu	Ala	Ala	Lys	
305					310					315					

<210> 213
 <211> 315
 <212> PRT
 <213> Mycoplasma genitalium

<400> 213
 Met Leu Lys Val Asn Ala Asp Phe Leu Thr Lys Asp Gln Val Ile Tyr
 1 5 10 15
 Asp Leu Val Ile Val Gly Ala Gly Pro Ala Gly Ile Ala Ser Ala Ile
 20 25 30
 Tyr Gly Lys Arg Ala Asn Leu Asn Leu Ala Ile Ile Glu Gly Asn Thr
 35 40 45
 Pro Gly Gly Lys Ile Val Lys Thr Asn Ile Val Glu Asn Tyr Pro Gly
 50 55 60
 Phe Lys Thr Ile Thr Gly Pro Glu Leu Gly Leu Glu Met Tyr Asn His
 65 70 75 80
 Leu Leu Ala Phe Glu Pro Val Val Phe Tyr Asn Asn Leu Ile Lys Ile
 85 90 95
 Asp His Leu Asn Asp Thr Phe Ile Leu Tyr Leu Asp Asn Lys Thr Thr
 100 105 110
 Val Phe Ser Lys Thr Val Ile Tyr Ala Thr Gly Met Glu Glu Arg Lys
 115 120 125
 Leu Gly Ile Glu Lys Glu Asp Tyr Phe Tyr Gly Lys Gly Ile Ser Tyr
 130 135 140
 Cys Ala Ile Cys Asp Ala Ala Leu Tyr Lys Gly Lys Thr Val Gly Val
 145 150 155 160
 Val Gly Gly Gly Asn Ser Ala Ile Gln Glu Ala Ile Tyr Leu Ser Ser
 165 170 175
 Ile Ala Lys Thr Val His Leu Ile His Arg Arg Glu Val Phe Arg Ser
 180 185 190
 Asp Ala Leu Leu Val Glu Lys Leu Lys Lys Ile Ser Asn Val Val Phe
 195 200 205
 His Leu Asn Ala Thr Val Lys Gln Leu Ile Gly Gln Glu Lys Leu Gln
 210 215 220
 Thr Val Lys Leu Ala Ser Thr Val Asp Lys Ser Glu Ser Glu Ile Ala
 225 230 235 240
 Ile Asp Cys Leu Phe Pro Tyr Ile Gly Phe Glu Ser Asn Asn Lys Pro
 245 250 255
 Val Leu Asp Leu Lys Leu Asn Leu Asp Gln Asn Gly Phe Ile Leu Gly
 260 265 270
 Asp Glu Asn Met Gln Thr Asn Ile Lys Gly Phe Tyr Val Ala Gly Asp
 275 280 285
 Cys Arg Ser Lys Ser Phe Arg Gln Ile Ala Thr Ala Ile Ser Asp Gly
 290 295 300
 Val Thr Ala Val Leu Lys Val Arg Asp Asp Ile
 305 310 315

<210> 214
 <211> 458
 <212> PRT
 <213> Mycobacterium leprae

<400> 214
 Met Asn Thr Thr Pro Ser Ala His Glu Thr Ile His Glu Val Ile Val
 1 5 10 15
 Ile Gly Ser Gly Pro Ala Gly Tyr Thr Ala Ala Leu Tyr Ala Ala Arg
 20 25 30
 Ala Gln Leu Thr Pro Leu Val Phe Glu Gly Thr Ser Phe Gly Gly Ala
 35 40 45
 Leu Met Thr Thr Thr Glu Val Glu Asn Tyr Pro Gly Phe Arg Asn Gly
 50 55 60
 Ile Thr Gly Pro Glu Leu Met Asp Asp Met Arg Glu Gln Ala Leu Arg
 65 70 75 80
 Phe Gly Ala Glu Leu Arg Thr Glu Asp Val Glu Ser Val Ser Leu Arg
 85 90 95
 Gly Pro Ile Lys Ser Val Val Thr Ala Glu Gly Gln Thr Tyr Gln Ala

Arg	Ala	Val	100	Ile	Leu	Ala	Met	Gly	105	Thr	Ser	Val	Arg	Tyr	110	Leu	Gln	Ile
		115						120						125				
Pro	Gly	Glu	Gln	Glu	Leu	Leu	Gly	Arg	Gly	Val	Ser	Ala	Cys	Ala	Thr			
	130						135					140						
Cys	Asp	Gly	Ser	Phe	Phe	Arg	Gly	Gln	Asp	Ile	Ala	Val	Ile	Gly	Gly			
	145				150					155					160			
Gly	Asp	Ser	Ala	Met	Glu	Glu	Ala	Leu	Phe	Leu	Thr	Arg	Phe	Ala	Arg			
				165					170						175			
Ser	Val	Thr	Leu	Val	His	Arg	Arg	Asp	Glu	Phe	Arg	Ala	Ser	Lys	Ile			
			180					185						190				
Met	Leu	Gly	Arg	Ala	Arg	Asn	Asn	Asp	Lys	Ile	Lys	Phe	Ile	Thr	Asn			
		195					200						205					
His	Thr	Val	Val	Ala	Val	Asn	Gly	Tyr	Thr	Thr	Val	Thr	Gly	Leu	Arg			
	210					215					220							
Leu	Arg	Asn	Thr	Thr	Thr	Gly	Glu	Glu	Thr	Thr	Leu	Val	Val	Thr	Gly			
	225				230						235				240			
Val	Phe	Val	Ala	Ile	Gly	His	Glu	Pro	Arg	Ser	Ser	Leu	Val	Ser	Asp			
			245						250					255				
Val	Val	Asp	Ile	Asp	Pro	Asp	Gly	Tyr	Val	Leu	Val	Lys	Gly	Arg	Thr			
		260						265					270					
Thr	Ser	Thr	Ser	Met	Asp	Gly	Val	Phe	Ala	Ala	Gly	Asp	Leu	Val	Asp			
		275					280					285						
Arg	Thr	Tyr	Arg	Gln	Ala	Ile	Thr	Ala	Ala	Gly	Ser	Gly	Cys	Ala	Ala			
	290					295					300							
Ala	Ile	Asp	Ala	Glu	Arg	Trp	Leu	Ala	Glu	His	Ala	Gly	Ser	Lys	Ala			
	305				310					315					320			
Asn	Glu	Thr	Thr	Glu	Glu	Thr	Gly	Asp	Val	Asp	Ser	Thr	Asp	Thr	Thr			
			325					330						335				
Asp	Trp	Ser	Thr	Ala	Met	Thr	Asp	Ala	Lys	Asn	Ala	Gly	Val	Thr	Ile			
			340					345					350					
Glu	Val	Thr	Asp	Ala	Ser	Phe	Phe	Ala	Asp	Val	Leu	Ser	Ser	Asn	Lys			
		355					360					365						
Pro	Val	Leu	Val	Asp	Phe	Trp	Ala	Thr	Trp	Cys	Gly	Pro	Cys	Lys	Met			
	370					375					380							
Val	Ala	Pro	Val	Leu	Glu	Glu	Ile	Ala	Ser	Glu	Gln	Arg	Asn	Gln	Leu			
					390					395					400			
Thr	Val	Ala	Lys	Leu	Asp	Val	Asp	Thr	Asn	Pro	Glu	Met	Ala	Arg	Glu			
			405						410					415				
Phe	Gln	Val	Val	Ser	Ile	Pro	Thr	Met	Ile	Leu	Phe	Gln	Gly	Gly	Gln			
			420					425					430					
Pro	Val	Lys	Arg	Ile	Val	Gly	Ala	Lys	Gly	Lys	Ala	Ala	Leu	Leu	Arg			
		435					440					445						
Asp	Leu	Ser	Asp	Val	Val	Pro	Asn	Leu	Asn									
	450					455												

<210> 215
 <211> 315
 <212> PRT
 <213> Mycoplasma pneumoniae

<400> 215
 Met Leu Lys Val Lys Ser Asp Phe Leu Thr Lys Asp Gln Val Ile Tyr
 1 5 10 15
 Asp Val Ala Ile Val Gly Ala Gly Pro Ala Gly Ile Ala Ala Gly Ile
 20 25 30
 Tyr Gly Lys Arg Ala Asn Leu Asn Leu Ala Ile Ile Glu Gly Ser Thr
 35 40 45
 Pro Gly Gly Lys Val Val Lys Thr Asn Ile Val Glu Asn Tyr Pro Gly
 50 55 60
 Tyr Lys Ser Ile Thr Gly Pro Asp Leu Gly Leu Glu Met Tyr Asn His
 65 70 75 80
 Leu Ile Asp Leu Glu Pro Thr Phe Phe Tyr Ala Asn Leu Ile Lys Leu
 85 90 95
 Asp Lys Ala Ala Asp Thr Phe Ile Leu Tyr Leu Asp Asp Lys Thr Val
 100 105 110

Val	Phe	Ala	Lys	Thr	Val	Ile	Tyr	Ala	Thr	Gly	Met	Leu	Glu	Arg	Lys
		115					120					125			
Leu	Gly	Val	Ala	Lys	Glu	Asp	His	Phe	Tyr	Gly	Lys	Gly	Ile	Ser	Tyr
	130					135					140				
Cys	Ala	Ile	Cys	Asp	Gly	Ser	Leu	Tyr	Lys	Asp	Gln	Val	Val	Gly	Val
145					150					155					160
Val	Gly	Gly	Gly	Asn	Ser	Ala	Ile	Gln	Glu	Ala	Leu	Tyr	Leu	Ala	Ser
				165					170						175
Met	Ala	Lys	Thr	Val	His	Leu	Ile	His	Arg	Arg	Glu	Gly	Phe	Arg	Ala
			180					185					190		
Asp	Glu	Thr	Ala	Leu	Asn	Lys	Leu	Arg	Asn	Leu	Pro	Asn	Val	Val	Phe
		195					200					205			
His	Leu	Asn	Tyr	Thr	Val	Lys	Glu	Leu	Leu	Gly	Asn	Asn	Thr	Leu	Asn
	210					215					220				
Gly	Ile	Val	Leu	Gln	Asn	Thr	Leu	Asp	His	Ser	Thr	Lys	Gln	Ile	Asp
225					230					235					240
Leu	Asn	Cys	Val	Phe	Pro	Tyr	Ile	Gly	Phe	Glu	Ser	Ile	Thr	Lys	Pro
				245					250						255
Val	Glu	His	Leu	Asn	Leu	Lys	Leu	Asp	Pro	Gln	Gly	Phe	Leu	Ile	Thr
			260					265					270		
Asn	Glu	Gln	Met	Glu	Thr	Ser	Leu	Lys	Gly	Leu	Phe	Ala	Ala	Gly	Asp
		275					280					285			
Cys	Arg	Ser	Lys	His	Phe	Arg	Gln	Ile	Gly	Thr	Ala	Ile	Asn	Asp	Gly
	290					295					300				
Ile	Ile	Ala	Val	Leu	Thr	Ile	Arg	Asp	Val	Leu					
305					310					315					

<210> 216

<211> 311

<212> PRT

<213> Mycobacterium smegmatis

<400> 216

Met	Ser	Thr	Ser	Gln	Thr	Val	His	Asp	Val	Ile	Ile	Ile	Gly	Ser	Gly
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Pro	Ala	Gly	Tyr	Thr	Ala	Ala	Ile	Tyr	Ala	Ala	Arg	Ala	Gln	Leu	Lys
			20					25					30		
Pro	Leu	Val	Phe	Glu	Gly	Thr	Gln	Phe	Gly	Gly	Ala	Leu	Met	Thr	Thr
		35					40					45			
Thr	Glu	Val	Glu	Asn	Tyr	Pro	Gly	Phe	Arg	Glu	Gly	Ile	Thr	Gly	Pro
	50					55					60				
Glu	Leu	Met	Asp	Gln	Met	Arg	Glu	Gln	Ala	Leu	Arg	Phe	Arg	Ala	Asp
65					70					75					80
Leu	Arg	Met	Glu	Asp	Val	Asp	Ala	Val	Gln	Leu	Glu	Gly	Pro	Val	Lys
				85					90					95	
Thr	Val	Val	Val	Gly	Asp	Glu	Thr	His	Gln	Ala	Arg	Ala	Val	Ile	Leu
			100					105					110		
Ala	Met	Gly	Ala	Ala	Ala	Arg	His	Leu	Gly	Val	Pro	Gly	Glu	Glu	Ala
		115					120					125			
Leu	Thr	Gly	Met	Gly	Val	Ser	Thr	Cys	Ala	Thr	Cys	Asp	Gly	Phe	Phe
	130					135					140				
Phe	Arg	Asp	Gln	Asp	Ile	Val	Val	Val	Gly	Gly	Gly	Asp	Ser	Ala	Met
145					150					155					160
Glu	Glu	Ala	Thr	Phe	Leu	Thr	Arg	Phe	Ala	Arg	Ser	Val	Thr	Leu	Ile
				165					170					175	
His	Arg	Arg	Asp	Glu	Phe	Arg	Ala	Ser	Lys	Ile	Met	Leu	Glu	Arg	Ala
			180					185					190		
Arg	Ala	Asn	Glu	Lys	Ile	Thr	Phe	Leu	Thr	Asn	Thr	Glu	Ile	Thr	Gln
		195					200					205			
Ile	Glu	Gly	Asp	Pro	Lys	Val	Thr	Gly	Val	Arg	Leu	Arg	Asp	Thr	Val
	210					215					220				
Thr	Gly	Glu	Glu	Ser	Lys	Leu	Asp	Val	Thr	Gly	Val	Phe	Val	Ala	Ile
225					230					235					240
Gly	His	Asp	Pro	Arg	Ser	Glu	Leu	Val	Arg	Gly	Gln	Val	Glu	Leu	Asp
				245					250					255	
Asp	Glu	Gly	Tyr	Val	Lys	Val	Gln	Gly	Arg	Thr	Thr	Tyr	Thr	Ser	Leu

Asp	Gly	Val	260	Phe	Ala	Ala	Gly	Asp	265	Leu	Val	Asp	His	Thr	270	Tyr	Arg	Gln
		275						280						285				
Ala	Ile	Thr	Ala	Ala	Gly	Ser	Gly	Cys	Ala	Ala	Ser	Ile	Asp	Ala	Glu			
	290					295					300							
Arg	Trp	Leu	Ala	Glu	Gln	Asp												
305					310													

<210> 217
 <211> 335
 <212> PRT
 <213> Mycobacterium tuberculosis

Met	Thr	Ala	Pro	Pro	Val	His	Asp	Arg	Ala	His	His	Pro	Val	Arg	Asp			
1				5					10					15				
Val	Ile	Val	Ile	Gly	Ser	Gly	Pro	Ala	Gly	Tyr	Thr	Ala	Ala	Leu	Tyr			
			20					25					30					
Ala	Ala	Arg	Ala	Gln	Leu	Ala	Pro	Leu	Val	Phe	Glu	Gly	Thr	Ser	Phe			
		35					40					45						
Gly	Gly	Ala	Leu	Met	Thr	Thr	Thr	Asp	Val	Glu	Asn	Tyr	Pro	Gly	Phe			
	50					55					60							
Arg	Asn	Gly	Ile	Thr	Gly	Pro	Glu	Leu	Met	Asp	Glu	Met	Arg	Glu	Gln			
65					70					75					80			
Ala	Leu	Arg	Phe	Gly	Ala	Asp	Leu	Arg	Met	Glu	Asp	Val	Glu	Ser	Val			
			85					90						95				
Ser	Leu	His	Gly	Pro	Leu	Lys	Ser	Val	Val	Thr	Ala	Asp	Gly	Gln	Thr			
			100					105					110					
His	Arg	Ala	Arg	Ala	Val	Ile	Leu	Ala	Met	Gly	Ala	Ala	Ala	Arg	Tyr			
		115					120					125						
Leu	Gln	Val	Pro	Gly	Glu	Gln	Glu	Leu	Leu	Gly	Arg	Gly	Val	Ser	Ser			
	130					135					140							
Cys	Ala	Thr	Cys	Asp	Gly	Phe	Phe	Phe	Arg	Asp	Gln	Asp	Ile	Ala	Val			
145					150				155					160				
Ile	Gly	Gly	Gly	Asp	Ser	Ala	Met	Glu	Glu	Ala	Thr	Phe	Leu	Thr	Arg			
				165				170						175				
Phe	Ala	Arg	Ser	Val	Thr	Leu	Val	His	Arg	Arg	Asp	Glu	Phe	Arg	Ala			
			180					185					190					
Ser	Lys	Ile	Met	Leu	Asp	Arg	Ala	Arg	Asn	Asn	Asp	Lys	Ile	Arg	Phe			
		195					200					205						
Leu	Thr	Asn	His	Thr	Val	Val	Ala	Val	Asp	Gly	Asp	Thr	Thr	Val	Thr			
	210					215					220							
Gly	Leu	Arg	Val	Arg	Asp	Thr	Asn	Thr	Gly	Ala	Glu	Thr	Thr	Leu	Pro			
225					230				235					240				
Val	Thr	Gly	Val	Phe	Val	Ala	Ile	Gly	His	Glu	Pro	Arg	Ser	Gly	Leu			
				245				250						255				
Val	Arg	Glu	Ala	Ile	Asp	Val	Asp	Pro	Asp	Gly	Tyr	Val	Leu	Val	Gln			
			260				265						270					
Gly	Arg	Thr	Thr	Ser	Thr	Ser	Leu	Pro	Gly	Val	Phe	Ala	Ala	Gly	Asp			
		275				280						285						
Leu	Val	Asp	Arg	Thr	Tyr	Arg	Gln	Ala	Val	Thr	Ala	Ala	Gly	Ser	Gly			
	290					295					300							
Cys	Ala	Ala	Ala	Ile	Asp	Ala	Glu	Arg	Trp	Leu	Ala	Glu	His	Ala	Ala			
305					310					315					320			
Thr	Gly	Glu	Ala	Asp	Ser	Thr	Asp	Ala	Leu	Ile	Gly	Ala	Gln	Arg				
				325				330						335				

<210> 218
 <211> 334
 <212> PRT
 <213> Neurospora crassa

Met	His	Ser	Lys	Val	Val	Ile	Ile	Gly	Ser	Gly	Pro	Ala	Ala	His	Thr			
1				5				10						15				

Ala	Ala	Ile	Tyr	Leu	Ala	Arg	Ala	Glu	Leu	Lys	Pro	Val	Leu	Tyr	Glu	
			20					25					30			
Gly	Phe	Met	Ala	Asn	Gly	Ile	Ala	Ala	Gly	Gly	Gln	Leu	Thr	Thr	Thr	
		35					40					45				
Thr	Glu	Ile	Glu	Asn	Phe	Pro	Gly	Phe	Pro	Asp	Gly	Ile	Met	Gly	Gln	
	50					55					60					
Glu	Leu	Met	Asp	Lys	Met	Lys	Ala	Gln	Ser	Glu	Arg	Phe	Gly	Thr	Gln	
65					70					75					80	
Ile	Ile	Ser	Glu	Thr	Val	Ala	Lys	Val	Asp	Leu	Ser	Ala	Arg	Pro	Phe	
			85						90					95		
Lys	Tyr	Ala	Thr	Glu	Trp	Ser	Pro	Glu	Glu	Tyr	His	Thr	Ala	Asp	Ser	
			100					105					110			
Ile	Ile	Leu	Ala	Thr	Gly	Ala	Ser	Ala	Arg	Arg	Leu	His	Leu	Pro	Gly	
		115					120					125				
Glu	Glu	Lys	Tyr	Trp	Gln	Asn	Gly	Ile	Ser	Ala	Cys	Ala	Val	Cys	Asp	
	130					135					140					
Gly	Ala	Val	Pro	Ile	Phe	Arg	Asn	Lys	His	Leu	Val	Val	Ile	Gly	Gly	
145					150					155					160	
Gly	Asp	Ser	Ala	Ala	Glu	Glu	Ala	Met	Tyr	Leu	Thr	Lys	Tyr	Gly	Ser	
			165						170					175		
His	Val	Thr	Val	Leu	Val	Arg	Lys	Asp	Lys	Leu	Arg	Ala	Ser	Ser	Ile	
			180					185					190			
Met	Ala	His	Arg	Leu	Leu	Asn	His	Glu	Lys	Val	Thr	Val	Arg	Phe	Asn	
		195				200						205				
Thr	Val	Gly	Val	Glu	Val	Lys	Gly	Asp	Asp	Lys	Gly	Leu	Met	Ser	His	
	210					215					220					
Leu	Val	Val	Lys	Asp	Val	Thr	Thr	Gly	Lys	Glu	Glu	Thr	Leu	Glu	Ala	
225					230					235					240	
Asn	Gly	Leu	Phe	Tyr	Ala	Ile	Gly	His	Asp	Pro	Ala	Thr	Ala	Leu	Val	
			245						250					255		
Lys	Gly	Gln	Leu	Glu	Thr	Asp	Ala	Asp	Gly	Tyr	Val	Val	Thr	Lys	Pro	
		260						265					270			
Gly	Thr	Thr	Leu	Thr	Ser	Val	Glu	Gly	Val	Phe	Ala	Ala	Gly	Asp	Val	
		275					280					285				
Gln	Asp	Lys	Arg	Tyr	Arg	Gln	Ala	Ile	Thr	Ser	Ala	Gly	Thr	Gly	Cys	
	290					295					300					
Met	Ala	Ala	Leu	Asp	Ala	Glu	Lys	Phe	Leu	Ser	Glu	His	Glu	Glu	Thr	
305					310					315					320	
Pro	Ala	Glu	His	Arg	Asp	Thr	Ser	Ala	Val	Gln	Gly	Asn	Leu			
			325						330							

<210> 219
 <211> 333
 <212> PRT
 <213> Penicillium chrysogenum

<400> 219
 Val His Ser Lys Val Val Ile Ile Gly Ser Gly Ala Gly Ala His Thr
 1 5 10 15
 Ala Ala Ile Tyr Leu Ser Arg Ala Glu Leu Gln Pro Val Leu Tyr Glu
 20 25 30
 Gly Met Leu Ala Asn Gly Thr Ala Ala Gly Gly Gln Leu Thr Thr Thr
 35 40 45
 Thr Asp Val Glu Asn Phe Pro Gly Phe Pro Ser Gly Ile Gly Gly Ala
 50 55 60
 Glu Leu Met Asp Asn Met Arg Ala Gln Ser Glu Arg Phe Gly Thr Glu
 65 70 75 80
 Ile Ile Thr Glu Thr Ile Ser Lys Leu Asp Leu Ser Ser Arg Pro Phe
 85 90 95
 Lys Met Trp Thr Glu Trp Asn Asp Asp Glu Gly Ser Glu Pro Val Arg
 100 105 110
 Thr Ala Asp Ala Val Ile Ile Ala Thr Gly Ala Asn Ala Arg Arg Leu
 115 120 125
 Asn Leu Pro Gly Glu Glu Thr Tyr Trp Gln Asn Gly Ile Ser Ala Cys
 130 135 140
 Ala Val Cys Asp Gly Ala Val Pro Ile Phe Arg Asn Lys Pro Leu Tyr

145					150					155				160
Val	Ile	Gly	Gly	Gly	Asp	Ser	Ala	Ala	Glu	Glu	Ala	Met	Phe	Leu
				165					170					175
Lys	Tyr	Gly	Ser	Ser	Val	Thr	Val	Leu	Val	Arg	Lys	Asp	Lys	Leu
			180					185					190	
Ala	Ser	Asn	Ile	Met	Ala	Asp	Arg	Leu	Leu	Ala	His	Pro	Lys	Cys
		195				200						205		
Val	Arg	Phe	Asn	Thr	Val	Ala	Thr	Glu	Val	Ile	Gly	Glu	Asn	Lys
	210					215					220			
Asn	Gly	Leu	Met	Thr	His	Leu	Arg	Val	Lys	Asp	Val	Leu	Ser	Asn
225					230					235				240
Glu	Glu	Val	Val	Glu	Ala	Asn	Gly	Leu	Phe	Tyr	Ala	Val	Gly	His
				245				250						255
Pro	Ala	Ser	Gly	Leu	Val	Lys	Gly	Gln	Val	Glu	Leu	Asp	Asp	Glu
			260				265						270	
Tyr	Ile	Ile	Thr	Lys	Pro	Gly	Thr	Ser	Phe	Thr	Asn	Val	Glu	Gly
		275					280					285		
Phe	Ala	Cys	Gly	Asp	Val	Gln	Asp	Lys	Arg	Tyr	Arg	Gln	Ala	Ile
	290				295					300				
Ser	Ala	Gly	Ser	Gly	Cys	Val	Ala	Ala	Leu	Glu	Ala	Glu	Lys	Phe
305					310					315				320
Ala	Glu	Thr	Glu	Thr	His	Gln	Glu	Ala	Lys	Pro	Val	Leu		
				325					330					

<210> 220
 <211> 310
 <212> PRT
 <213> Rickettsia prowazekii

<400> 220

Met	Lys	Ile	Thr	Thr	Lys	Val	Leu	Ile	Ile	Gly	Ser	Gly	Pro	Ala	Gly
1				5				10						15	
Leu	Ser	Ala	Ala	Ile	Tyr	Thr	Ala	Arg	Ser	Ala	Leu	Lys	Pro	Ile	Leu
			20				25						30		
Ile	Asn	Gly	Met	Gln	Pro	Gly	Gly	Gln	Leu	Thr	Met	Thr	Thr	Asp	Val
		35				40						45			
Glu	Asn	Tyr	Pro	Gly	Phe	Ala	Glu	Thr	Ile	Gln	Gly	Pro	Trp	Leu	Met
	50				55					60					
Glu	Gln	Met	Ser	Met	Gln	Ala	Lys	Asn	Val	Gly	Thr	Glu	Ile	Ile	Ser
65					70					75					80
Asp	Tyr	Val	Glu	Arg	Val	Asp	Leu	Ser	Lys	Arg	Pro	Phe	Lys	Ile	Phe
				85				90						95	
Thr	Gly	Thr	Gly	Asn	Glu	Tyr	Glu	Ala	Asp	Ser	Ile	Ile	Ile	Cys	Thr
			100				105						110		
Gly	Ala	Glu	Ser	Lys	Trp	Leu	Gly	Ile	Ala	Ser	Glu	Gln	Glu	Phe	Arg
		115				120						125			
Gly	Phe	Gly	Val	Ser	Ser	Cys	Ala	Ile	Cys	Asp	Gly	Phe	Phe	Phe	Lys
	130				135					140					
Asn	Gln	Glu	Ile	Val	Val	Val	Gly	Gly	Gly	Asn	Ser	Ala	Leu	Glu	Glu
145					150					155					160
Ala	Leu	Tyr	Leu	Thr	Asn	His	Ala	Asn	Lys	Val	Thr	Val	Val	His	Arg
				165					170					175	
Arg	Asn	Ser	Phe	Arg	Ala	Glu	Lys	Ile	Leu	Gln	Asp	Arg	Leu	Phe	Lys
		180						185					190		
Asn	Pro	Lys	Ile	Ser	Val	Ile	Trp	Asp	His	Ile	Ile	Asp	Glu	Ile	Val
		195					200					205			
Gly	Ser	Asn	Lys	Pro	Lys	Ala	Val	Thr	Gly	Val	Lys	Ile	Gln	Asn	Val
	210					215					220				
Tyr	Thr	Asn	Glu	Ile	Asn	Leu	Val	Asn	Cys	Ser	Gly	Val	Phe	Ile	Ala
225					230				235						240
Ile	Gly	His	Ala	Pro	Asn	Thr	Ala	Leu	Phe	Lys	Gly	Gln	Ile	Ala	Ile
				245				250						255	
Asp	Asp	Asp	Asn	Tyr	Ile	Val	Thr	Gln	Ser	Gly	Ser	Thr	Arg	Thr	Asn
			260				265					270			
Val	Glu	Gly	Val	Phe	Ala	Ala	Gly	Asp	Val	Gln	Asp	Lys	Ile	Tyr	Arg
		275					280					285			

Gln	Ala	Val	Thr	Ala	Ala	Ala	Ser	Gly	Cys	Met	Ala	Ala	Leu	Glu	Val
	290					295					300				
Ala	Lys	Phe	Leu	Asn	Lys										
305					310										

<210> 221
 <211> 322
 <212> PRT
 <213> Schizosaccharomyces pombe

<400> 221															
Met	Thr	His	Asn	Lys	Val	Val	Ile	Ile	Gly	Ser	Gly	Pro	Ala	Gly	His
1				5					10					15	
Thr	Ala	Ala	Ile	Tyr	Leu	Ala	Arg	Gly	Glu	Leu	Lys	Pro	Val	Met	Tyr
			20					25					30		
Glu	Gly	Met	Leu	Ala	Asn	Gly	Ile	Ala	Ala	Gly	Gly	Gln	Leu	Thr	Thr
		35				40						45			
Thr	Thr	Asp	Val	Glu	Asn	Phe	Pro	Gly	Phe	Pro	Asp	Gly	Ile	Asn	Gly
		50				55					60				
Thr	Thr	Leu	Thr	Glu	Asn	Phe	Arg	Ala	Gln	Ser	Leu	Arg	Phe	Gly	Thr
65					70					75					80
Glu	Ile	Ile	Thr	Glu	Thr	Val	Ser	Lys	Leu	Asp	Leu	Ser	Ser	Arg	Pro
				85					90					95	
Phe	Lys	Tyr	Trp	Leu	Glu	Gly	Ala	Glu	Glu	Glu	Glu	Pro	His	Thr	Ala
			100					105					110		
Asp	Ser	Val	Ile	Leu	Ala	Thr	Gly	Ala	Ser	Ala	Arg	Arg	Leu	His	Ile
		115					120					125			
Thr	Gly	Glu	Asp	Thr	Tyr	Trp	Gln	Ala	Gly	Ile	Ser	Ala	Cys	Ala	Val
	130					135					140				
Cys	Asp	Gly	Ala	Val	Pro	Ile	Tyr	Arg	Asn	Lys	Pro	Leu	Ala	Val	Val
145					150					155					160
Gly	Gly	Gly	Asp	Ser	Ala	Ala	Glu	Glu	Ala	Gln	Phe	Leu	Thr	Lys	Tyr
			165						170					175	
Gly	Ser	Lys	Val	Tyr	Val	Leu	Val	Arg	Arg	Asp	Lys	Leu	Arg	Ala	Ser
			180					185					190		
Pro	Ile	Met	Ala	Lys	Arg	Leu	Leu	Ala	Asn	Pro	Lys	Val	Glu	Val	Leu
		195					200					205			
Trp	Asn	Thr	Val	Ala	Glu	Glu	Ala	Gln	Gly	Asp	Gly	Lys	Leu	Leu	Asn
	210					215					220				
Asn	Leu	Arg	Ile	Lys	Asn	Thr	Asn	Thr	Asn	Glu	Val	Ser	Asp	Leu	Gln
225					230					235					240
Val	Asn	Gly	Leu	Phe	Tyr	Ala	Ile	Gly	His	Ile	Pro	Ala	Thr	Lys	Leu
				245					250					255	
Val	Ala	Glu	Gln	Ile	Glu	Leu	Asp	Glu	Ala	Gly	Tyr	Ile	Lys	Thr	Ile
			260					265					270		
Asn	Gly	Thr	Pro	Arg	Thr	Ser	Ile	Pro	Gly	Phe	Phe	Ala	Ala	Gly	Asp
		275					280					285			
Val	Gln	Asp	Lys	Val	Phe	Arg	Gln	Ala	Ile	Thr	Ser	Ala	Gly	Ser	Gly
	290					295					300				
Cys	Gln	Ala	Ala	Leu	Leu	Ala	Met	His	Tyr	Leu	Glu	Glu	Leu	Glu	Asp
305					310					315					320
Thr	Asp														

<210> 222
 <211> 321
 <212> PRT
 <213> Streptomyces clavuligerus

<400> 222															
Ser	Asp	Val	Arg	Asn	Val	Ile	Ile	Ile	Gly	Ser	Gly	Pro	Ala	Gly	Tyr
1				5					10					15	
Thr	Ala	Ala	Leu	Tyr	Thr	Ala	Arg	Ala	Ser	Leu	Gln	Pro	Leu	Val	Phe
			20					25					30		
Glu	Gly	Ala	Val	Thr	Ala	Gly	Gly	Ala	Leu	Met	Asn	Thr	Thr	Asp	Val

		35				40				45					
Glu	Asn	Phe	Pro	Gly	Phe	Arg	Asp	Gly	Ile	Met	Gly	Pro	Asp	Leu	Met
	50					55					60				
Asp	Asn	Met	Arg	Ala	Gln	Ala	Glu	Arg	Phe	Gly	Ala	Glu	Leu	Ile	Pro
65					70					75					80
Asp	Asp	Val	Val	Ser	Val	Asp	Leu	Thr	Gly	Asp	Ile	Lys	Thr	Val	Thr
				85					90					95	
Asp	Ser	Ala	Gly	Thr	Val	His	Arg	Ala	Lys	Ala	Val	Ile	Val	Thr	Thr
			100					105					110		
Gly	Ser	Gln	His	Arg	Lys	Leu	Gly	Leu	Pro	Arg	Glu	Asp	Ala	Leu	Ser
		115					120					125			
Gly	Arg	Gly	Val	Ser	Trp	Cys	Ala	Thr	Cys	Asp	Gly	Phe	Phe	Phe	Lys
	130					135					140				
Asp	Gln	Asp	Ile	Val	Val	Val	Gly	Gly	Gly	Asp	Thr	Ala	Met	Glu	Glu
145					150					155					160
Ala	Thr	Phe	Leu	Ser	Arg	Phe	Ala	Lys	Ser	Val	Thr	Ile	Val	His	Arg
				165					170					175	
Arg	Asp	Ser	Leu	Arg	Ala	Ser	Lys	Ala	Met	Gln	Asp	Arg	Ala	Phe	Ala
			180					185					190		
Asp	Pro	Lys	Ile	Ser	Phe	Ala	Trp	Asn	Ser	Glu	Val	Ala	Thr	Ile	His
		195					200					205			
Gly	Glu	Gln	Lys	Leu	Thr	Gly	Leu	Thr	Leu	Arg	Asp	Thr	Lys	Thr	Gly
	210					215					220				
Glu	Thr	Arg	Glu	Leu	Ala	Ala	Thr	Gly	Leu	Phe	Ile	Ala	Val	Gly	His
225					230					235					240
Asp	Pro	Arg	Thr	Glu	Leu	Phe	Lys	Gly	Gln	Leu	Asp	Leu	Asp	Asp	Glu
				245					250					255	
Gly	Tyr	Leu	Lys	Val	Ala	Ser	Pro	Ser	Thr	Arg	Thr	Asn	Leu	Thr	Gly
			260					265					270		
Val	Phe	Ala	Ala	Gly	Asp	Val	Val	Asp	His	Thr	Tyr	Arg	Gln	Ala	Ile
		275					280					285			
Thr	Ala	Ala	Gly	Thr	Gly	Cys	Ser	Ala	Ala	Leu	Asp	Ala	Glu	Arg	Tyr
	290					295					300				
Leu	Ala	Ala	Leu	Ala	Asp	Ser	Glu	Gln	Ile	Ala	Glu	Pro	Ala	Pro	Ala
305					310					315					320
Val															

<210> 223

<211> 321

<212> PRT

<213> Streptomyces coelicolor

<400> 223

Ser	Asp	Val	Arg	Asn	Val	Ile	Ile	Ile	Gly	Ser	Gly	Pro	Ala	Gly	Tyr
1				5					10					15	
Thr	Ala	Ala	Leu	Tyr	Thr	Ala	Arg	Ala	Ser	Leu	Lys	Pro	Leu	Val	Phe
			20					25					30		
Glu	Gly	Ala	Val	Thr	Ala	Gly	Gly	Ala	Leu	Met	Asn	Thr	Thr	Glu	Val
		35				40					45				
Glu	Asn	Phe	Pro	Gly	Phe	Gln	Asp	Gly	Ile	Met	Gly	Pro	Glu	Leu	Met
	50					55					60				
Asp	Asn	Met	Arg	Ala	Gln	Ala	Glu	Arg	Phe	Gly	Ala	Glu	Leu	Ile	Pro
65					70					75					80
Asp	Asp	Val	Val	Ala	Val	Asp	Leu	Ser	Gly	Glu	Ile	Lys	Thr	Val	Thr
				85					90					95	
Asp	Thr	Ala	Gly	Thr	Val	His	Arg	Ala	Lys	Ala	Val	Ile	Val	Thr	Thr
			100					105					110		
Gly	Ser	Gln	His	Arg	Lys	Leu	Gly	Leu	Pro	Asn	Glu	Asp	Ala	Leu	Ser
		115					120					125			
Gly	Arg	Gly	Val	Ser	Trp	Cys	Ala	Thr	Cys	Asp	Gly	Phe	Phe	Phe	Lys
	130					135					140				
Asp	Gln	Asp	Ile	Ala	Val	Ile	Gly	Gly	Gly	Asp	Thr	Ala	Met	Glu	Glu
145					150					155					160
Ala	Thr	Phe	Leu	Ser	Arg	Phe	Ala	Lys	Ser	Val	Thr	Ile	Val	His	Arg
				165					170					175	

Arg	Asp	Thr	Leu	Arg	Ala	Ser	Lys	Ala	Met	Gln	Glu	Arg	Ala	Phe	Ala
			180					185					190		
Asp	Pro	Lys	Ile	Ser	Phe	Val	Trp	Asp	Ser	Glu	Val	Ala	Glu	Val	Gln
		195					200					205			
Gly	Asp	Gln	Lys	Leu	Ala	Gly	Leu	Lys	Leu	Arg	Asn	Val	Lys	Thr	Gly
	210					215					220				
Glu	Leu	Ser	Asp	Leu	Pro	Val	Thr	Gly	Leu	Phe	Ile	Ala	Ile	Gly	His
225					230					235					240
Asp	Pro	Arg	Thr	Glu	Leu	Phe	Lys	Gly	Gln	Leu	Asp	Leu	Asp	Pro	Glu
				245					250					255	
Gly	Tyr	Leu	Lys	Val	Asp	Ala	Pro	Ser	Thr	Arg	Thr	Asn	Leu	Thr	Gly
			260					265					270		
Val	Phe	Gly	Ala	Gly	Asp	Val	Val	Asp	His	Thr	Tyr	Arg	Gln	Ala	Ile
		275					280					285			
Thr	Ala	Ala	Gly	Thr	Gly	Cys	Ser	Ala	Ala	Val	Asp	Ala	Glu	Pro	Phe
	290					295					300				
Leu	Ala	Ala	Leu	Ser	Asp	Glu	Asp	Lys	Ala	Glu	Pro	Glu	Lys	Thr	Ala
305					310					315					320
Val															

<210> 224

<211> 307

<212> PRT

<213> Treponema pallidum

<400> 224

Met	Glu	Thr	Asp	Tyr	Asp	Val	Ile	Ile	Val	Gly	Ala	Gly	Ala	Ala	Gly
1				5					10					15	
Leu	Ser	Ala	Ala	Gln	Tyr	Ala	Cys	Arg	Ala	Asn	Leu	Arg	Thr	Leu	Val
			20					25					30		
Ile	Glu	Ser	Lys	Ala	His	Gly	Gly	Gln	Ala	Leu	Leu	Ile	Asp	Ser	Leu
		35				40						45			
Glu	Asn	Tyr	Pro	Gly	Tyr	Ala	Thr	Pro	Ile	Ser	Gly	Phe	Glu	Tyr	Ala
	50				55						60				
Glu	Asn	Met	Lys	Lys	Gln	Ala	Val	Ala	Phe	Gly	Ala	Gln	Ile	Ala	Tyr
65					70					75					80
Glu	Glu	Val	Thr	Thr	Ile	Gly	Lys	Arg	Asp	Ser	Val	Phe	His	Ile	Thr
				85					90					95	
Thr	Gly	Thr	Gly	Ala	Tyr	Thr	Ala	Met	Ser	Val	Ile	Leu	Ala	Thr	Gly
			100					105					110		
Ala	Glu	His	Arg	Lys	Met	Gly	Ile	Pro	Gly	Glu	Ser	Glu	Phe	Leu	Gly
		115				120						125			
Arg	Gly	Val	Ser	Tyr	Cys	Ala	Thr	Cys	Asp	Gly	Pro	Phe	Phe	Arg	Asn
	130					135					140				
Lys	His	Val	Val	Val	Ile	Gly	Gly	Gly	Asp	Ala	Ala	Cys	Asp	Glu	Ser
145					150					155					160
Leu	Val	Leu	Ser	Arg	Leu	Thr	Asp	Arg	Val	Thr	Met	Ile	His	Arg	Arg
				165					170					175	
Asp	Thr	Leu	Arg	Ala	Gln	Lys	Ala	Ile	Ala	Glu	Arg	Thr	Leu	Lys	Asn
			180					185					190		
Pro	His	Ile	Ala	Val	Gln	Trp	Asn	Thr	Thr	Leu	Glu	Ala	Val	Arg	Gly
		195					200					205			
Glu	Thr	Lys	Val	Ser	Ser	Val	Leu	Leu	Lys	Asp	Val	Lys	Thr	Gly	Glu
	210					215					220				
Thr	Arg	Glu	Leu	Ala	Cys	Asp	Ala	Val	Phe	Phe	Phe	Ile	Gly	Met	Val
225					230					235					240
Pro	Ile	Thr	Gly	Leu	Leu	Pro	Asp	Ala	Glu	Lys	Asp	Ser	Thr	Gly	Tyr
				245					250					255	
Ile	Val	Thr	Asp	Asp	Glu	Met	Arg	Thr	Ser	Val	Glu	Gly	Ile	Phe	Ala
			260					265					270		
Ala	Gly	Asp	Val	Arg	Ala	Lys	Ser	Phe	Arg	Gln	Val	Ile	Thr	Ala	Thr
		275					280					285			
Ser	Asp	Gly	Ala	Leu	Ala	Ala	His	Ala	Ala	Ala	Ser	Tyr	Ile	Asp	Thr
	290					295					300				
Leu	Gln	Asn													

<210> 225
 <211> 45
 <212> PRT
 <213> *Vibrio fischeri*

<400> 225
 Met Asn Val Lys His Ser Lys Leu Leu Ile Leu Gly Ser Gly Pro Ala
 1 5 10 15
 Gly Tyr Thr Ala Ala Val Tyr Ala Ala Arg Ala Asn Leu Asn Pro Val
 20 25 30
 Met Ile Thr Gly Met Gln Gln Gly Gly Gln Leu Thr Asn
 35 40 45

<210> 226
 <211> 318
 <212> PRT
 <213> *Saccharomyces cerevisiae*

<400> 226
 Val His Asn Lys Val Thr Ile Ile Gly Ser Gly Pro Ala Ala His Thr
 1 5 10 15
 Ala Ala Ile Tyr Leu Ala Arg Ala Glu Ile Lys Pro Ile Leu Tyr Glu
 20 25 30
 Gly Met Met Ala Asn Gly Ile Ala Ala Gly Gly Gln Leu Thr Thr Thr
 35 40 45
 Thr Glu Ile Glu Asn Phe Pro Gly Phe Pro Asp Gly Leu Thr Gly Ser
 50 55 60
 Glu Leu Met Asp Arg Met Arg Glu Gln Ser Thr Lys Phe Gly Thr Glu
 65 70 75 80
 Ile Ile Thr Glu Thr Val Ser Lys Val Asp Leu Ser Ser Lys Pro Phe
 85 90 95
 Lys Leu Trp Thr Glu Phe Asn Glu Asp Ala Glu Pro Val Thr Thr Asp
 100 105 110
 Ala Ile Ile Leu Ala Thr Gly Ala Ser Ala Lys Arg Met His Leu Pro
 115 120 125
 Gly Glu Glu Thr Tyr Trp Gln Lys Gly Ile Ser Ala Cys Ala Val Cys
 130 135 140
 Asp Gly Ala Val Pro Ile Phe Arg Asn Lys Pro Leu Ala Val Ile Gly
 145 150 155 160
 Gly Gly Asp Ser Ala Cys Glu Glu Ala Gln Phe Leu Thr Lys Tyr Gly
 165 170 175
 Ser Lys Val Phe Met Leu Val Arg Lys Asp His Leu Arg Ala Ser Thr
 180 185 190
 Ile Met Gln Lys Arg Ala Glu Lys Asn Glu Lys Ile Glu Ile Leu Tyr
 195 200 205
 Asn Thr Val Ala Leu Glu Ala Lys Gly Asp Gly Lys Leu Leu Asn Ala
 210 215 220
 Leu Arg Ile Lys Asn Thr Lys Lys Asn Glu Glu Thr Asp Leu Pro Val
 225 230 235 240
 Ser Gly Leu Phe Tyr Ala Ile Gly His Thr Pro Ala Thr Lys Ile Val
 245 250 255
 Ala Gly Gln Val Asp Thr Asp Glu Ala Gly Tyr Ile Lys Thr Val Pro
 260 265 270
 Gly Ser Ser Leu Thr Ser Val Pro Gly Phe Phe Ala Ala Gly Asp Val
 275 280 285
 Gln Asp Ser Lys Tyr Arg Gln Ala Ile Thr Ser Ala Gly Ser Gly Cys
 290 295 300
 Met Ala Ala Leu Asp Ala Glu Lys Tyr Leu Thr Ser Leu Glu
 305 310 315

<210> 227
 <211> 342

<212> PRT

<213> *Saccharomyces cerevisiae*

<400> 227

Met	Ile	Lys	His	Ile	Val	Ser	Pro	Phe	Arg	Thr	Asn	Phe	Val	Gly	Ile
1				5					10					15	
Ser	Lys	Ser	Val	Leu	Ser	Arg	Met	Ile	His	His	Lys	Val	Thr	Ile	Ile
			20					25					30		
Gly	Ser	Gly	Pro	Ala	Ala	His	Thr	Ala	Ala	Ile	Tyr	Leu	Ala	Arg	Ala
		35					40					45			
Glu	Met	Lys	Pro	Thr	Leu	Tyr	Glu	Gly	Met	Met	Ala	Asn	Gly	Ile	Ala
	50					55					60				
Ala	Gly	Gly	Gln	Leu	Thr	Thr	Thr	Thr	Asp	Ile	Glu	Asn	Phe	Pro	Gly
65					70					75					80
Phe	Pro	Glu	Ser	Leu	Ser	Gly	Ser	Glu	Leu	Met	Glu	Arg	Met	Arg	Lys
				85					90					95	
Gln	Ser	Ala	Lys	Phe	Gly	Thr	Asn	Ile	Ile	Thr	Glu	Thr	Val	Ser	Lys
			100					105					110		
Val	Asp	Leu	Ser	Ser	Lys	Pro	Phe	Arg	Leu	Trp	Thr	Glu	Phe	Asn	Glu
	115						120					125			
Asp	Ala	Glu	Pro	Val	Thr	Thr	Asp	Ala	Ile	Ile	Leu	Ala	Thr	Gly	Ala
	130					135					140				
Ser	Ala	Lys	Arg	Met	His	Leu	Pro	Gly	Glu	Glu	Thr	Tyr	Trp	Gln	Gln
145					150					155					160
Gly	Ile	Ser	Ala	Cys	Ala	Val	Cys	Asp	Gly	Ala	Val	Pro	Ile	Phe	Arg
				165					170					175	
Asn	Lys	Pro	Leu	Ala	Val	Ile	Gly	Gly	Gly	Asp	Ser	Ala	Cys	Glu	Glu
			180					185					190		
Ala	Glu	Phe	Leu	Thr	Lys	Tyr	Ala	Ser	Lys	Val	Tyr	Ile	Leu	Val	Arg
	195						200					205			
Lys	Asp	His	Phe	Arg	Ala	Ser	Val	Ile	Met	Gln	Arg	Arg	Ile	Glu	Lys
	210					215					220				
Asn	Pro	Asn	Ile	Ile	Val	Leu	Phe	Asn	Thr	Val	Ala	Leu	Glu	Ala	Lys
225					230					235					240
Gly	Asp	Gly	Lys	Leu	Leu	Asn	Met	Leu	Arg	Ile	Lys	Asn	Thr	Lys	Ser
				245					250					255	
Asn	Val	Glu	Asn	Asp	Leu	Glu	Val	Asn	Gly	Leu	Phe	Tyr	Ala	Ile	Gly
			260					265					270		
His	Ser	Pro	Ala	Thr	Asp	Ile	Val	Lys	Gly	Gln	Val	Asp	Glu	Glu	Glu
		275					280					285			
Thr	Gly	Tyr	Ile	Lys	Thr	Val	Pro	Gly	Ser	Ser	Leu	Thr	Ser	Val	Pro
	290					295					300				
Gly	Phe	Phe	Ala	Ala	Gly	Asp	Val	Gln	Asp	Ser	Arg	Tyr	Arg	Gln	Ala
305					310					315					320
Val	Thr	Ser	Ala	Gly	Ser	Gly	Cys	Ile	Ala	Ala	Leu	Asp	Ala	Glu	Arg
				325					330					335	
Tyr	Leu	Ser	Ala	Gln	Glu										
				340											

<210> 228

<211> 499

<212> PRT

<213> *Bos taurus*

<400> 228

Met	Asn	Gly	Ser	Lys	Asp	Leu	Pro	Glu	Pro	Tyr	Asp	Tyr	Asp	Leu	Ile
1				5					10					15	
Ile	Ile	Gly	Gly	Gly	Ser	Gly	Gly	Leu	Ala	Ala	Ala	Lys	Glu	Ala	Ala
			20					25					30		
Lys	Tyr	Asp	Lys	Lys	Val	Met	Val	Leu	Asp	Phe	Val	Thr	Pro	Thr	Pro
		35					40					45			
Leu	Gly	Thr	Arg	Trp	Gly	Leu	Gly	Gly	Thr	Cys	Val	Asn	Val	Gly	Cys
	50					55					60				
Ile	Pro	Lys	Lys	Leu	Met	His	Gln	Ala	Ala	Leu	Leu	Gly	Gln	Ala	Leu
65					70					75					80
Arg	Asp	Ser	Arg	Asn	Tyr	Gly	Trp	Asn	Val	Glu	Glu	Thr	Val	Lys	His

Asp	Trp	Glu	Arg	Met	Thr	Glu	Ala	Val	Gln	Asn	His	Ile	Gly	Ser	Leu
			100						105				110		
Asn	Trp	Gly	Tyr	Arg	Val	Ala	Leu	Arg	Glu	Lys	Lys	Val	Thr	Tyr	Glu
		115					120					125			
Asn	Ala	Tyr	Gly	Glu	Phe	Val	Gly	Pro	His	Arg	Ile	Lys	Ala	Thr	Asn
	130					135					140				
Asn	Lys	Gly	Lys	Glu	Lys	Ile	Tyr	Ser	Ala	Glu	Arg	Phe	Leu	Ile	Ala
145				150					155				160		
Thr	Gly	Glu	Arg	Pro	Arg	Tyr	Leu	Gly	Ile	Pro	Gly	Asp	Lys	Glu	Tyr
				165				170					175		
Cys	Ile	Ser	Ser	Asp	Asp	Leu	Phe	Ser	Leu	Pro	Tyr	Cys	Pro	Gly	Lys
			180					185					190		
Thr	Leu	Val	Val	Gly	Ala	Ser	Tyr	Val	Ala	Leu	Glu	Cys	Ala	Gly	Phe
		195					200					205			
Leu	Ala	Gly	Ile	Gly	Leu	Asp	Val	Thr	Val	Met	Val	Arg	Ser	Ile	Leu
	210					215					220				
Leu	Arg	Gly	Phe	Asp	Gln	Asp	Met	Ala	Asn	Lys	Ile	Gly	Glu	His	Met
225				230					235						240
Gln	Glu	His	Gly	Ile	Lys	Phe	Ile	Arg	Gln	Phe	Val	Pro	Ile	Lys	Val
			245					250					255		
Glu	Gln	Ile	Glu	Ala	Gly	Thr	Pro	Gly	Arg	Leu	Arg	Val	Ile	Ala	Lys
			260					265					270		
Ser	Thr	Asp	Ser	Asp	Gln	Thr	Ile	Glu	Gly	Glu	Tyr	Asn	Thr	Val	Leu
		275					280					285			
Leu	Ala	Ile	Gly	Arg	Asp	Ala	Cys	Thr	Arg	Lys	Ile	Gly	Leu	Glu	Asn
	290					295					300				
Val	Gly	Val	Lys	Ile	Asn	Glu	Lys	Thr	Gly	Lys	Ile	Pro	Val	Thr	Glu
305				310					315						320
Glu	Glu	Gln	Thr	Asn	Val	Pro	Tyr	Ile	Tyr	Ala	Ile	Gly	Asp	Ile	Leu
			325					330					335		
Glu	Gly	Lys	Leu	Glu	Leu	Thr	Pro	Val	Ala	Ile	Gln	Ala	Gly	Arg	Leu
			340					345					350		
Leu	Ala	Gln	Arg	Leu	Tyr	Gly	Gly	Ser	Thr	Val	Lys	Cys	Asp	Tyr	Glu
		355					360					365			
Asn	Val	Pro	Thr	Thr	Val	Phe	Thr	Pro	Leu	Glu	Tyr	Gly	Ser	Cys	Gly
	370					375					380				
Leu	Ser	Glu	Glu	Lys	Ala	Val	Glu	Lys	Phe	Gly	Glu	Glu	Asn	Val	Glu
385				390					395						400
Val	Tyr	His	Ser	Tyr	Phe	Trp	Pro	Leu	Glu	Trp	Thr	Ile	Pro	Ser	Arg
			405					410					415		
Asp	Asn	Asn	Lys	Cys	Tyr	Ala	Lys	Val	Val	Cys	Asn	Ile	Lys	Asp	Asn
			420					425					430		
Glu	Arg	Val	Val	Gly	Phe	His	Val	Leu	Gly	Pro	Asn	Ala	Gly	Glu	Val
		435					440					445			
Thr	Gln	Gly	Phe	Ala	Ala	Ala	Leu	Lys	Cys	Gly	Leu	Thr	Lys	Asp	Gln
	450					455					460				
Leu	Asp	Ser	Thr	Ile	Gly	Ile	His	Pro	Val	Cys	Ala	Glu	Val	Phe	Thr
465				470					475						480
Thr	Leu	Ser	Val	Thr	Lys	Arg	Ser	Gly	Gly	Asn	Ile	Leu	Gln	Thr	Gly
			485					490					495		
Cys	Cys	Gly													

<210> 229

<211> 523

<212> PRT

<213> Caenorhabditis elegans

<400> 229

Met	Tyr	Ile	Lys	Gly	Asn	Ala	Val	Gly	Gly	Leu	Lys	Glu	Leu	Lys	Ala
1			5					10					15		
Leu	Lys	Gln	Asp	Tyr	Leu	Lys	Glu	Trp	Leu	Arg	Asp	His	Thr	Tyr	Asp
		20					25					30			
Leu	Ile	Val	Ile	Gly	Gly	Gly	Ser	Gly	Gly	Leu	Ala	Ala	Ala	Lys	Glu
		35					40					45			

Ala	Ser	Arg	Leu	Gly	Lys	Lys	Val	Ala	Cys	Leu	Asp	Phe	Val	Lys	Pro
50					55						60				
Ser	Pro	Gln	Gly	Thr	Ser	Trp	Gly	Leu	Gly	Gly	Thr	Cys	Val	Asn	Val
65					70					75				80	
Gly	Cys	Ile	Pro	Lys	Lys	Leu	Met	His	Gln	Ala	Ser	Leu	Leu	Gly	His
				85					90					95	
Ser	Ile	His	Asp	Ala	Lys	Lys	Tyr	Gly	Trp	Lys	Leu	Pro	Glu	Gly	Lys
			100					105					110		
Val	Glu	His	Gln	Trp	Asn	His	Leu	Arg	Asp	Ser	Val	Gln	Asp	His	Ile
		115					120					125			
Ala	Ser	Leu	Asn	Trp	Gly	Tyr	Arg	Val	Gln	Leu	Arg	Glu	Lys	Thr	Val
130						135					140				
Thr	Tyr	Ile	Asn	Ser	Tyr	Gly	Glu	Phe	Thr	Gly	Pro	Phe	Glu	Ile	Ser
145					150					155					160
Ala	Thr	Asn	Lys	Lys	Lys	Lys	Val	Glu	Lys	Leu	Thr	Ala	Asp	Arg	Phe
				165					170					175	
Leu	Ile	Ser	Thr	Gly	Leu	Arg	Pro	Lys	Tyr	Pro	Glu	Ile	Pro	Gly	Val
			180					185					190		
Lys	Glu	Tyr	Thr	Ile	Thr	Ser	Asp	Asp	Leu	Phe	Gln	Leu	Pro	Tyr	Ser
		195					200					205			
Pro	Gly	Lys	Thr	Leu	Cys	Val	Gly	Ala	Ser	Tyr	Val	Ser	Leu	Glu	Cys
210						215					220				
Ala	Gly	Phe	Leu	His	Gly	Phe	Gly	Phe	Asp	Val	Thr	Val	Met	Val	Arg
225					230					235					240
Ser	Ile	Leu	Leu	Arg	Gly	Phe	Asp	Gln	Asp	Met	Ala	Glu	Arg	Ile	Arg
				245					250					255	
Lys	His	Met	Ile	Ala	Tyr	Gly	Met	Lys	Phe	Glu	Ala	Gly	Val	Pro	Thr
			260					265					270		
Arg	Ile	Glu	Gln	Ile	Asp	Glu	Lys	Thr	Asp	Glu	Lys	Ala	Gly	Lys	Tyr
		275					280					285			
Arg	Val	Phe	Trp	Pro	Lys	Lys	Asn	Glu	Glu	Thr	Gly	Glu	Met	Gln	Glu
290						295					300				
Val	Ser	Glu	Glu	Tyr	Asn	Thr	Ile	Leu	Met	Ala	Ile	Gly	Arg	Glu	Ala
305					310					315					320
Val	Thr	Asp	Asp	Val	Gly	Leu	Thr	Thr	Ile	Gly	Val	Glu	Arg	Ala	Lys
				325					330					335	
Ser	Lys	Lys	Val	Leu	Gly	Arg	Arg	Glu	Gln	Ser	Thr	Thr	Ile	Pro	Trp
			340					345					350		
Val	Tyr	Ala	Ile	Gly	Asp	Val	Leu	Glu	Gly	Thr	Pro	Glu	Leu	Thr	Pro
		355					360					365			
Val	Ala	Ile	Gln	Ala	Gly	Arg	Val	Leu	Met	Arg	Arg	Ile	Phe	Asp	Gly
370					375						380				
Ala	Asn	Glu	Leu	Thr	Glu	Tyr	Asp	Gln	Ile	Pro	Thr	Thr	Val	Phe	Thr
385					390					395					400
Pro	Leu	Glu	Tyr	Gly	Cys	Cys	Gly	Leu	Ser	Glu	Glu	Asp	Ala	Met	Met
				405					410					415	
Lys	Tyr	Gly	Lys	Asp	Asn	Ile	Ile	Ile	Tyr	His	Asn	Val	Phe	Asn	Pro
			420					425					430		
Leu	Glu	Tyr	Thr	Ile	Ser	Glu	Arg	Met	Asp	Lys	Asp	His	Cys	Tyr	Leu
		435					440					445			
Lys	Met	Ile	Cys	Leu	Arg	Asn	Glu	Glu	Glu	Lys	Val	Val	Gly	Phe	His
450						455					460				
Ile	Leu	Thr	Pro	Asn	Ala	Gly	Glu	Val	Thr	Gln	Gly	Phe	Gly	Ile	Ala
465					470					475					480
Leu	Lys	Leu	Ala	Ala	Lys	Lys	Ala	Asp	Phe	Asp	Arg	Leu	Ile	Gly	Ile
				485					490					495	
His	Pro	Thr	Val	Ala	Glu	Asn	Phe	Thr	Thr	Leu	Thr	Leu	Glu	Lys	Lys
			500					505					510		
Glu	Gly	Asp	Glu	Glu	Leu	Gln	Ala	Ser	Gly	Cys					
		515					520								

<210> 230

<211> 497

<212> PRT

<213> Homo sapiens

<400> 230

Met	Asn	Gly	Pro	Glu	Asp	Leu	Pro	Lys	Ser	Tyr	Asp	Tyr	Asp	Leu	Ile
1				5				10						15	
Ile	Ile	Gly	Gly	Gly	Ser	Gly	Gly	Leu	Ala	Ala	Ala	Lys	Glu	Ala	Ala
			20					25					30		
Gln	Tyr	Gly	Lys	Lys	Val	Met	Val	Leu	Asp	Phe	Val	Thr	Pro	Thr	Pro
		35					40					45			
Leu	Gly	Thr	Arg	Trp	Gly	Leu	Gly	Gly	Thr	Cys	Val	Asn	Val	Gly	Cys
	50					55					60				
Ile	Pro	Lys	Lys	Leu	Met	His	Gln	Ala	Ala	Leu	Leu	Gly	Gln	Ala	Leu
65					70				75						80
Gln	Asp	Ser	Arg	Asn	Tyr	Gly	Trp	Lys	Val	Glu	Glu	Thr	Val	Lys	His
				85					90					95	
Asp	Trp	Asp	Arg	Met	Ile	Glu	Ala	Val	Gln	Asn	His	Ile	Gly	Ser	Leu
			100					105					110		
Asn	Trp	Gly	Tyr	Arg	Val	Ala	Leu	Arg	Glu	Lys	Lys	Val	Val	Tyr	Glu
		115					120					125			
Asn	Ala	Tyr	Gly	Gln	Phe	Ile	Gly	Pro	His	Arg	Ile	Lys	Ala	Thr	Asn
	130					135					140				
Asn	Lys	Gly	Lys	Glu	Lys	Ile	Tyr	Ser	Ala	Glu	Ser	Phe	Leu	Ile	Ala
145					150					155					160
Thr	Gly	Glu	Arg	Pro	Arg	Tyr	Leu	Gly	Ile	Pro	Gly	Asp	Lys	Glu	Tyr
				165					170					175	
Cys	Ile	Ser	Ser	Asp	Asp	Leu	Phe	Ser	Leu	Pro	Tyr	Cys	Pro	Gly	Lys
			180					185					190		
Thr	Leu	Val	Val	Gly	Ala	Ser	Tyr	Val	Ala	Leu	Glu	Cys	Ala	Gly	Phe
		195					200					205			
Leu	Ala	Gly	Ile	Gly	Leu	Gly	Val	Thr	Val	Met	Val	Arg	Ser	Ile	Leu
	210					215					220				
Leu	Arg	Gly	Phe	Asp	Gln	Asp	Met	Ala	Asn	Lys	Ile	Gly	Glu	His	Met
225					230					235					240
Glu	Glu	His	Gly	Ile	Lys	Phe	Ile	Arg	Gln	Phe	Val	Pro	Ile	Lys	Val
				245					250					255	
Glu	Gln	Ile	Glu	Ala	Gly	Thr	Pro	Gly	Arg	Leu	Arg	Val	Val	Ala	Gln
			260					265					270		
Ser	Thr	Asn	Ser	Glu	Glu	Ile	Ile	Glu	Gly	Glu	Tyr	Asn	Thr	Val	Met
		275				280						285			
Leu	Ala	Ile	Gly	Arg	Asp	Ala	Cys	Thr	Arg	Lys	Ile	Gly	Leu	Glu	Thr
	290					295					300				
Val	Gly	Val	Lys	Ile	Asn	Glu	Lys	Thr	Gly	Lys	Ile	Pro	Val	Thr	Asp
305					310					315					320
Glu	Glu	Gln	Thr	Asn	Val	Pro	Tyr	Ile	Tyr	Ala	Ile	Gly	Asp	Ile	Leu
				325					330					335	
Glu	Asp	Lys	Val	Glu	Leu	Thr	Pro	Val	Ala	Ile	Gln	Ala	Gly	Arg	Leu
			340					345					350		
Leu	Ala	Gln	Arg	Leu	Tyr	Ala	Gly	Ser	Thr	Val	Lys	Cys	Asp	Tyr	Glu
		355					360					365			
Asn	Val	Pro	Thr	Thr	Val	Phe	Thr	Pro	Leu	Glu	Tyr	Gly	Ala	Cys	Gly
	370					375					380				
Leu	Ser	Glu	Glu	Lys	Ala	Val	Glu	Lys	Phe	Gly	Glu	Glu	Asn	Ile	Glu
385					390					395					400
Val	Tyr	His	Ser	Tyr	Phe	Trp	Pro	Leu	Glu	Trp	Thr	Ile	Pro	Ser	Arg
				405					410					415	
Asp	Asn	Asn	Lys	Cys	Tyr	Ala	Lys	Ile	Ile	Cys	Asn	Thr	Lys	Asp	Asn
			420					425					430		
Glu	Arg	Val	Val	Gly	Phe	His	Val	Leu	Gly	Pro	Asn	Ala	Gly	Glu	Val
		435					440					445			
Thr	Gln	Gly	Phe	Ala	Ala	Ala	Leu	Lys	Cys	Gly	Leu	Thr	Lys	Lys	Gln
	450					455					460				
Leu	Asp	Ser	Thr	Ile	Gly	Ile	His	Pro	Val	Cys	Ala	Glu	Val	Phe	Thr
465					470					475					480
Thr	Leu	Ser	Val	Thr	Lys	Arg	Ser	Gly	Ala	Ser	Ile	Leu	Gln	Ala	Gly
				485					490					495	

Cys

<210> 231

<211> 541
 <212> PRT
 <213> Plasmodium falciparum

<400> 231

Met	Cys	Lys	Asp	Lys	Asn	Glu	Lys	Lys	Asn	Tyr	Glu	His	Val	Asn	Ala	
1				5					10					15		
Asn	Glu	Lys	Asn	Gly	Tyr	Leu	Ala	Ser	Glu	Lys	Asn	Glu	Leu	Thr	Lys	
			20					25					30			
Asn	Lys	Val	Glu	Glu	His	Thr	Tyr	Asp	Tyr	Asp	Tyr	Val	Val	Ile	Gly	
		35				40						45				
Gly	Gly	Pro	Gly	Gly	Met	Ala	Ser	Ala	Lys	Glu	Ala	Ala	Ala	His	Gly	
	50				55					60						
Ala	Arg	Val	Leu	Leu	Phe	Asp	Tyr	Val	Lys	Pro	Ser	Ser	Gln	Gly	Thr	
65				70					75						80	
Lys	Trp	Gly	Ile	Gly	Gly	Thr	Cys	Val	Asn	Val	Gly	Cys	Val	Pro	Lys	
			85						90					95		
Lys	Leu	Met	His	Tyr	Ala	Gly	His	Met	Gly	Ser	Ile	Phe	Lys	Leu	Asp	
			100					105					110			
Ser	Lys	Ala	Tyr	Gly	Trp	Lys	Phe	Asp	Asn	Leu	Lys	His	Asp	Trp	Lys	
		115				120						125				
Lys	Leu	Val	Thr	Thr	Val	Gln	Ser	His	Ile	Arg	Ser	Leu	Asn	Phe	Ser	
	130					135					140					
Tyr	Met	Thr	Gly	Leu	Arg	Ser	Ser	Lys	Val	Lys	Tyr	Ile	Asn	Gly	Leu	
145				150						155					160	
Ala	Lys	Leu	Lys	Asp	Lys	Asn	Thr	Val	Ser	Tyr	Tyr	Leu	Lys	Gly	Asp	
			165						170					175		
Leu	Ser	Lys	Glu	Glu	Thr	Val	Thr	Gly	Lys	Tyr	Ile	Leu	Ile	Ala	Thr	
			180					185					190			
Gly	Cys	Arg	Pro	His	Ile	Pro	Asp	Asp	Val	Glu	Gly	Ala	Lys	Glu	Leu	
		195				200						205				
Ser	Ile	Thr	Ser	Asp	Asp	Ile	Phe	Ser	Leu	Lys	Lys	Asp	Pro	Gly	Lys	
	210					215					220					
Thr	Leu	Val	Val	Gly	Ala	Ser	Tyr	Val	Ala	Leu	Glu	Cys	Ser	Gly	Phe	
225				230						235					240	
Leu	Asn	Ser	Leu	Gly	Tyr	Asp	Val	Thr	Val	Ala	Val	Arg	Ser	Ile	Val	
			245						250					255		
Leu	Arg	Gly	Phe	Asp	Gln	Gln	Cys	Ala	Val	Lys	Val	Lys	Leu	Tyr	Met	
			260					265					270			
Glu	Glu	Gln	Gly	Val	Met	Phe	Lys	Asn	Gly	Ile	Leu	Pro	Lys	Lys	Leu	
		275					280					285				
Thr	Lys	Met	Asp	Asp	Lys	Ile	Leu	Val	Glu	Phe	Ser	Asp	Lys	Thr	Ser	
	290					295					300					
Glu	Leu	Tyr	Asp	Thr	Val	Leu	Tyr	Ala	Ile	Gly	Arg	Lys	Gly	Asp	Ile	
305				310						315					320	
Asp	Gly	Leu	Asn	Leu	Glu	Ser	Leu	Asn	Met	Asn	Val	Asn	Lys	Ser	Asn	
			325						330					335		
Asn	Lys	Ile	Ile	Ala	Asp	His	Leu	Ser	Cys	Thr	Asn	Ile	Pro	Ser	Ile	
			340					345					350			
Phe	Ala	Val	Gly	Asp	Val	Ala	Glu	Asn	Val	Pro	Glu	Leu	Ala	Pro	Val	
		355					360					365				
Ala	Ile	Lys	Ala	Gly	Glu	Ile	Leu	Ala	Arg	Arg	Leu	Phe	Lys	Asp	Ser	
	370					375					380					
Asp	Glu	Ile	Met	Asp	Tyr	Ser	Tyr	Ile	Pro	Thr	Ser	Ile	Tyr	Thr	Pro	
385				390						395					400	
Ile	Glu	Tyr	Gly	Ala	Cys	Gly	Tyr	Ser	Glu	Glu	Lys	Ala	Tyr	Glu	Leu	
			405						410					415		
Tyr	Gly	Lys	Ser	Asn	Val	Glu	Val	Phe	Leu	Gln	Glu	Phe	Asn	Asn	Leu	
			420					425					430			
Glu	Ile	Ser	Ala	Val	His	Arg	Gln	Lys	His	Ile	Arg	Ala	Gln	Lys	Asp	
		435					440					445				
Glu	Tyr	Asp	Leu	Asp	Val	Ser	Ser	Thr	Cys	Leu	Ala	Lys	Leu	Val	Cys	
	450					455					460					
Leu	Lys	Asn	Glu	Asp	Asn	Arg	Val	Ile	Gly	Phe	His	Tyr	Val	Gly	Pro	
465				470						475					480	
Asn	Ala	Gly	Glu	Val	Thr	Gln	Gly	Met	Ala	Leu	Ala	Leu	Arg	Leu	Lys	
			485						490					495		

Val	Lys	Lys	Lys	Asp	Phe	Asp	Asn	Cys	Ile	Gly	Ile	His	Pro	Thr	Asp
			500					505					510		
Ala	Glu	Ser	Phe	Met	Asn	Leu	Phe	Val	Thr	Ile	Ser	Ser	Gly	Leu	Ser
		515					520					525			
Tyr	Ala	Ala	Lys	Gly	Gly	Cys	Gly	Gly	Gly	Lys	Cys	Gly			
	530					535					540				

<210> 232
 <211> 535
 <212> PRT
 <213> Arabidopsis thaliana

<400> 232

Met	Ala	Ala	Ser	Pro	Lys	Ile	Gly	Ile	Gly	Ile	Ala	Ser	Val	Ser	Ser
1				5					10					15	
Pro	His	Arg	Val	Ser	Ala	Ala	Ser	Ser	Ala	Leu	Ser	Pro	Pro	Pro	His
			20					25					30		
Leu	Phe	Phe	Leu	Thr	Thr	Thr	Thr	Thr	Thr	Arg	His	Gly	Gly	Ser	Tyr
		35					40					45			
Leu	Leu	Arg	Gln	Pro	Thr	Arg	Thr	Arg	Ser	Ser	Asp	Ser	Leu	Arg	Leu
	50					55					60				
Arg	Val	Ser	Ala	Thr	Ala	Asn	Ser	Pro	Ser	Ser	Ser	Ser	Ser	Gly	Gly
65					70					75					80
Glu	Ile	Ile	Glu	Asn	Val	Val	Ile	Ile	Gly	Ser	Gly	Pro	Ala	Gly	Tyr
				85					90					95	
Thr	Ala	Ala	Ile	Tyr	Ala	Ala	Arg	Ala	Asn	Leu	Lys	Pro	Val	Val	Phe
			100					105					110		
Glu	Gly	Tyr	Gln	Met	Gly	Gly	Val	Pro	Gly	Gly	Gln	Leu	Met	Thr	Thr
		115					120					125			
Thr	Glu	Val	Glu	Asn	Phe	Pro	Gly	Phe	Pro	Asp	Gly	Ile	Thr	Gly	Pro
	130					135					140				
Asp	Leu	Met	Glu	Lys	Met	Arg	Lys	Gln	Ala	Glu	Arg	Trp	Gly	Ala	Glu
145					150					155					160
Leu	Tyr	Pro	Glu	Asp	Val	Glu	Ser	Leu	Ser	Val	Thr	Thr	Ala	Pro	Phe
				165						170				175	
Thr	Val	Gln	Thr	Ser	Glu	Arg	Lys	Val	Lys	Cys	His	Ser	Ile	Ile	Tyr
			180					185					190		
Ala	Thr	Gly	Ala	Thr	Ala	Arg	Arg	Leu	Arg	Leu	Pro	Arg	Glu	Glu	Glu
		195					200					205			
Phe	Trp	Ser	Arg	Gly	Ile	Ser	Ala	Cys	Ala	Ile	Cys	Asp	Gly	Ala	Ser
	210					215					220				
Pro	Leu	Phe	Lys	Gly	Gln	Val	Leu	Ala	Val	Val	Gly	Gly	Gly	Asp	Thr
225					230					235					240
Ala	Thr	Glu	Glu	Ala	Leu	Tyr	Leu	Thr	Lys	Tyr	Ala	Arg	His	Val	His
				245					250					255	
Leu	Leu	Val	Arg	Arg	Asp	Gln	Leu	Arg	Ala	Ser	Lys	Ala	Met	Gln	Asp
			260					265					270		
Arg	Val	Ile	Asn	Asn	Pro	Asn	Ile	Thr	Val	His	Tyr	Asn	Thr	Glu	Thr
		275					280					285			
Val	Asp	Val	Leu	Ser	Asn	Thr	Lys	Gly	Gln	Met	Ser	Gly	Ile	Leu	Leu
	290					295					300				
Arg	Arg	Leu	Asp	Thr	Gly	Glu	Glu	Thr	Glu	Leu	Glu	Ala	Lys	Gly	Leu
305					310					315					320
Phe	Tyr	Gly	Ile	Gly	His	Ser	Pro	Asn	Ser	Gln	Leu	Leu	Glu	Gly	Gln
				325					330					335	
Val	Glu	Leu	Asp	Ser	Ser	Gly	Tyr	Val	Leu	Val	Arg	Glu	Gly	Thr	Ser
			340					345					350		
Asn	Thr	Ser	Val	Glu	Gly	Val	Phe	Ala	Ala	Gly	Asp	Val	Gln	Asp	His
		355					360					365			
Glu	Trp	Arg	Gln	Ala	Val	Thr	Ala	Ala	Gly	Ser	Gly	Cys	Ile	Ala	Ala
	370					375					380				
Leu	Ser	Ala	Glu	Arg	Tyr	Leu	Thr	Ser	Asn	Asn	Leu	Leu	Val	Glu	Phe
385					390					395					400
His	Gln	Pro	Gln	Thr	Glu	Glu	Ala	Lys	Lys	Glu	Phe	Thr	Gln	Arg	Asp
				405					410					415	
Val	Gln	Glu	Lys	Phe	Asp	Ile	Thr	Leu	Thr	Lys	His	Lys	Gly	Gln	Tyr

Ala	Leu	Arg	420	Lys	Leu	Tyr	His	Glu	425	Ser	Pro	Arg	Val	Ile	430	Leu	Val	Leu
		435							440						445			
Tyr	Thr	Ser	Pro	Thr	Cys	Gly	Pro	Cys	Arg	Thr	Leu	Lys	Pro	Ile	Leu			
	450					455					460							
Asn	Lys	Val	Val	Asp	Glu	Tyr	Asn	His	Asp	Val	His	Phe	Val	Glu	Ile			
465					470					475					480			
Asp	Ile	Glu	Glu	Asp	Gln	Glu	Ile	Ala	Glu	Ala	Ala	Gly	Ile	Met	Gly			
				485					490					495				
Thr	Pro	Cys	Val	Gln	Phe	Phe	Lys	Asn	Lys	Glu	Met	Leu	Arg	Leu	Gly			
			500					505					510					
Asn	Val	Leu	Ser	Val	Leu	Lys	Leu	His	Arg	Leu	Leu	Cys	Ser	Gly	Leu			
	515						520					525						
Ala	Lys	Asp	Ser	Glu	Ser	Val												
	530					535												

<210> 233
 <211> 117
 <212> PRT
 <213> Helianthus annuus

<400> 233

Ala	Val	Val	Glu	Ala	Tyr	Gly	Glu	Glu	Gly	Lys	Asn	Val	Leu	Gly	Gly
1				5					10					15	
Leu	Lys	Val	Lys	Asn	Val	Val	Ser	Gly	Glu	Val	Ser	Asp	Leu	Lys	Val
			20					25					30		
Asn	Gly	Leu	Phe	Phe	Ala	Ile	Gly	His	Glu	Pro	Ala	Thr	Lys	Phe	Leu
	35						40					45			
Asp	Gly	Gln	Leu	Glu	Leu	Asp	Ser	Asp	Gly	Tyr	Val	Val	Thr	Lys	Pro
	50					55					60				
Gly	Thr	Thr	Ile	Ser	Ser	Val	Lys	Gly	Val	Phe	Ala	Ala	Gly	Asp	Val
65					70					75					80
Gln	Asp	Lys	Lys	Tyr	Arg	Gln	Ala	Val	Thr	Ala	Ala	Gly	Ser	Gly	Cys
				85					90					95	
Met	Ala	Ala	Leu	Asp	Ala	Glu	His	Tyr	Leu	Gln	Glu	Ile	Gly	Ser	Gln
			100					105					110		
Glu	Gly	Lys	Ser	Asp											
		115													

<210> 234
 <211> 300
 <212> PRT
 <213> Arcaeoglobus fulgidus

<400> 234

Met	Tyr	Asp	Val	Ala	Ile	Ile	Gly	Gly	Gly	Pro	Ala	Gly	Leu	Thr	Ala
1				5					10					15	
Ala	Leu	Tyr	Ser	Ala	Arg	Tyr	Gly	Leu	Lys	Thr	Val	Phe	Phe	Glu	Thr
			20					25					30		
Val	Asp	Pro	Val	Ser	Gln	Leu	Ser	Leu	Ala	Ala	Lys	Ile	Glu	Asn	Tyr
	35						40					45			
Pro	Gly	Phe	Glu	Gly	Ser	Gly	Met	Glu	Leu	Leu	Glu	Lys	Met	Lys	Glu
	50					55					60				
Gln	Ala	Val	Lys	Ala	Gly	Ala	Glu	Trp	Lys	Leu	Glu	Lys	Val	Glu	Arg
65					70					75					80
Val	Glu	Arg	Asn	Gly	Glu	Thr	Phe	Thr	Val	Ile	Ala	Glu	Gly	Gly	Glu
			85					90						95	
Tyr	Glu	Ala	Lys	Ala	Ile	Ile	Val	Ala	Thr	Gly	Gly	Lys	His	Lys	Glu
			100					105					110		
Ala	Gly	Ile	Glu	Gly	Glu	Ser	Ala	Phe	Ile	Gly	Arg	Gly	Val	Ser	Tyr
	115						120					125			
Cys	Ala	Thr	Cys	Asp	Gly	Asn	Phe	Phe	Arg	Gly	Lys	Lys	Val	Ile	Val
	130					135					140				
Tyr	Gly	Ser	Gly	Lys	Glu	Ala	Ile	Glu	Asp	Ala	Ile	Tyr	Leu	His	Asp
145					150					155					160

Ile	Gly	Cys	Glu	Val	Thr	Ile	Val	Ser	Arg	Thr	Pro	Ser	Phe	Arg	Ala
				165					170					175	
Glu	Lys	Ala	Leu	Val	Glu	Glu	Val	Glu	Lys	Arg	Gly	Ile	Pro	Val	His
			180					185					190		
Tyr	Ser	Thr	Thr	Ile	Arg	Lys	Ile	Ile	Gly	Ser	Gly	Lys	Val	Glu	Lys
		195				200						205			
Val	Val	Ala	Tyr	Asn	Arg	Glu	Lys	Lys	Glu	Glu	Phe	Glu	Ile	Glu	Ala
	210					215					220				
Asp	Gly	Ile	Phe	Val	Ala	Ile	Gly	Met	Arg	Pro	Ala	Thr	Asp	Val	Val
225					230					235					240
Ala	Glu	Leu	Gly	Val	Glu	Arg	Asp	Ser	Met	Gly	Tyr	Ile	Lys	Val	Asp
				245					250					255	
Lys	Glu	Gln	Arg	Thr	Asn	Val	Glu	Gly	Val	Phe	Ala	Ala	Gly	Asp	Cys
			260					265					270		
Cys	Asp	Asn	Pro	Leu	Lys	Gln	Val	Val	Thr	Ala	Cys	Gly	Asp	Gly	Ala
		275					280					285			
Val	Ala	Ala	Tyr	Ser	Ala	Tyr	Lys	Tyr	Leu	Thr	Ser				
	290					295					300				

<210> 235

<211> 315

<212> PRT

<213> Bacillus halodurans

<400> 235

Met	Gly	Glu	Glu	Gln	Lys	Val	Tyr	Asp	Val	Val	Ile	Ala	Gly	Ala	Gly
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Pro	Ala	Gly	Met	Thr	Ala	Ala	Val	Tyr	Thr	Ser	Arg	Ala	Asn	Leu	Ser
			20					25					30		
Thr	Val	Met	Val	Glu	Arg	Gly	Val	Pro	Gly	Gly	Gln	Met	Ala	Asn	Thr
		35				40						45			
Glu	Asp	Val	Glu	Asn	Tyr	Pro	Gly	Phe	Asp	His	Ile	Leu	Gly	Pro	Glu
	50				55					60					
Leu	Ser	Thr	Lys	Met	Phe	Glu	His	Ala	Lys	Lys	Phe	Gly	Ala	Glu	Tyr
65				70					75						80
Ala	Tyr	Gly	Asp	Ile	Lys	Glu	Ile	Ile	Asp	Gln	Gly	Asp	Leu	Lys	Leu
				85				90					95		
Val	Lys	Ala	Gly	Asn	Lys	Glu	Tyr	Lys	Ala	Arg	Ala	Val	Ile	Val	Ala
			100					105					110		
Thr	Gly	Ala	Glu	Tyr	Lys	Lys	Leu	Gly	Val	Pro	Gly	Glu	Lys	Glu	Leu
		115				120						125			
Ser	Gly	Arg	Gly	Val	Ser	Tyr	Cys	Ala	Val	Cys	Asp	Gly	Ala	Phe	Phe
	130				135					140					
Lys	Gly	Lys	Glu	Leu	Val	Val	Val	Gly	Gly	Gly	Asp	Ser	Ala	Val	Glu
145				150					155						160
Glu	Ala	Val	Tyr	Leu	Thr	Arg	Phe	Ala	Ser	Lys	Val	Thr	Ile	Ile	His
				165				170						175	
Arg	Arg	Asp	Gln	Leu	Arg	Ala	Gln	Lys	Ile	Leu	Gln	Gln	Arg	Ala	Phe
			180					185					190		
Asp	Asn	Asp	Lys	Ile	Glu	Phe	Ile	Trp	Asp	His	Val	Val	Lys	Gln	Ile
		195				200					205				
Asn	Gly	Thr	Asp	Gly	Lys	Val	Ser	Ser	Val	Thr	Ile	Glu	His	Ala	Lys
	210				215						220				
Thr	Gly	Glu	Gln	Gln	Asp	Phe	Lys	Thr	Asp	Gly	Val	Phe	Ile	Tyr	Ile
225				230						235					240
Gly	Met	Leu	Pro	Leu	Asn	Glu	Ala	Val	Lys	Asn	Leu	Asn	Ile	Leu	Asn
				245				250					255		
Asp	Glu	Gly	Tyr	Ile	Val	Thr	Asn	Glu	Glu	Met	Glu	Thr	Ser	Val	Pro
			260				265						270		
Gly	Ile	Phe	Ala	Ala	Gly	Asp	Val	Arg	Glu	Lys	Ser	Leu	Arg	Gln	Ile
		275				280						285			
Val	Thr	Ala	Thr	Gly	Asp	Gly	Ser	Leu	Ala	Ala	Gln	Asn	Val	Gln	His
	290				295						300				
Tyr	Ile	Glu	Glu	Leu	Ala	Glu	Lys	Val	Lys	Asn					
305				310						315					

<210> 236
 <211> 330
 <212> PRT
 <213> Bacillus halodurans

<400> 236
 Met Ser Arg Lys Glu Glu Leu Tyr Asp Ile Thr Ile Ile Gly Gly Gly
 1 5 10 15
 Pro Thr Gly Leu Phe Ala Ala Phe Tyr Gly Gly Met Arg Gln Ala Lys
 20 25 30
 Val Lys Ile Ile Glu Ser Met Pro Gln Leu Gly Gly Gln Leu Ala Ala
 35 40 45
 Leu Tyr Pro Glu Lys Tyr Ile Tyr Asp Val Ala Gly Phe Pro Lys Val
 50 55 60
 Lys Ala Gln Asp Leu Val Asn Asp Leu Lys Arg Gln Ala Glu Gln Phe
 65 70 75 80
 Asn Pro Thr Ile Ala Leu Glu Gln Ser Val Gln Asn Val Thr Lys Glu
 85 90 95
 Thr Asp Asp Thr Phe Thr Ile Lys Thr Asp Lys Glu Thr His Tyr Ser
 100 105 110
 Lys Ala Ile Ile Ile Thr Ala Gly Ala Gly Ala Phe Gln Pro Arg Arg
 115 120 125
 Leu Glu Val Glu Gly Ala Lys Gln Tyr Glu Gly Lys Asn Leu Gln Tyr
 130 135 140
 Phe Val Asn Asp Leu Asn Ala Tyr Ala Gly Lys Asn Val Leu Ile Ser
 145 150 155 160
 Gly Gly Gly Asp Ser Ala Val Asp Trp Ala Leu Met Leu Glu Pro Val
 165 170 175
 Ala Lys Asn Val Thr Leu Ile His Arg Arg Asp Lys Phe Arg Ala His
 180 185 190
 Glu His Ser Val Glu Leu Leu Gln Lys Ser Ser Val Asn Ile Leu Thr
 195 200 205
 Pro Phe Ala Ile Ser Glu Leu Ser Gly Asp Gly Glu Lys Ile His His
 210 215 220
 Val Thr Ile Gln Glu Val Lys Gly Asp Ala Val Glu Thr Leu Asp Val
 225 230 235 240
 Asp Glu Val Ile Val Asn Phe Gly Phe Val Ser Ser Leu Gly Pro Ile
 245 250 255
 Lys Gly Trp Gly Leu Glu Ile Glu Lys Asn Ser Ile Val Val Asn Thr
 260 265 270
 Lys Met Glu Thr Asn Ile Pro Gly Ile Tyr Ala Ala Gly Asp Ile Cys
 275 280 285
 Thr Tyr Pro Gly Lys Val Lys Leu Ile Ala Thr Gly Phe Gly Glu Ala
 290 295 300
 Pro Thr Ala Val Asn Asn Ala Lys Ala Phe Ile Asp Pro Thr Ala Arg
 305 310 315 320
 Val Phe Pro Gly His Ser Thr Ser Leu Phe
 325 330

<210> 237
 <211> 213
 <212> PRT
 <213> Bacillus halodurans

<400> 237
 Met Thr Asn Leu His Tyr Thr Val Lys Ser Leu Met Arg Phe Lys Asp
 1 5 10 15
 Lys Thr Val Ile Ile Ser Gly Gly Gly Asn Ser Ala Ile Asp Trp Ala
 20 25 30
 Asn Glu Leu Glu Pro Ile Ala Lys Lys Val Tyr Leu Thr Tyr Arg Lys
 35 40 45
 Glu Ala Leu Asn Gly His Glu Ala Gln Ile Ser Gln Leu Leu Ser Ser
 50 55 60
 Ser Ala Thr Cys Leu Phe His Thr Thr Ile Ser Lys Leu Ile Ala Arg
 65 70 75 80
 Asp Asn Lys Glu Val Ile Glu Gln Val Glu Leu Thr Asp His Gln Thr

				85				90					95			
Gly	Glu	Val	Thr	Asn	Leu	Ala	Val	Asp	Glu	Val	Ile	Ile	Asn	His	Gly	
			100					105					110			
Tyr	Glu	Arg	Asp	Lys	Ser	Leu	Leu	Asp	Gln	Ser	Glu	Val	Thr	Leu	Asp	
		115					120					125				
Arg	Ile	Asp	Asp	Tyr	Tyr	Ile	Ala	Gly	Thr	Pro	Thr	Ser	Ala	Thr	Ser	
	130					135					140					
Val	Gly	Gly	Ile	Tyr	Ala	Ala	Gly	Asp	Val	Leu	Lys	His	Glu	Gly	Lys	
145					150					155					160	
Leu	His	Leu	Ile	Ala	Gly	Ala	Phe	Gln	Asp	Ala	Ala	Asn	Ala	Val	Asn	
				165					170					175		
Gln	Ala	Lys	Gln	Trp	Ile	Glu	Pro	Glu	Ala	His	Gln	Ser	Ala	Met	Val	
			180					185					190			
Ser	Ser	His	Asn	His	Val	Phe	Lys	Glu	Arg	Asn	Arg	Glu	Leu	Ile	Arg	
		195					200					205				
Gln	Met	Leu	Lys	Asn												
																210

<210> 238
 <211> 136
 <212> PRT
 <213> Bacillus halodurans

Met	Asn	Trp	Glu	Glu	Leu	Tyr	Asp	Val	Thr	Ile	Ile	Gly	Gly	Gly	Pro	
1				5				10						15		
Ala	Gly	Leu	Phe	Ser	Ala	Phe	Tyr	Ser	Gly	Leu	Arg	Glu	Met	Lys	Thr	
			20					25					30			
Lys	Val	Ile	Glu	Tyr	Gln	Pro	Met	Leu	Gly	Gly	Lys	Val	His	Val	Tyr	
		35					40					45				
Pro	Glu	Lys	Met	Ile	Trp	Asp	Val	Gly	Gly	Leu	Thr	Pro	Ile	Leu	Gly	
	50					55					60					
Glu	Lys	Leu	Ile	Glu	Gln	Leu	Val	Thr	Gln	Ala	Leu	Thr	Phe	Asn	Pro	
65				70					75						80	
Thr	Val	Val	Leu	Asn	Glu	Lys	Val	Thr	Ser	Ile	Ala	Gln	Glu	Glu	Ser	
				85				90					95			
Gly	Trp	Phe	Val	Ile	Arg	Thr	Ala	Ser	Gly	Arg	Ala	His	Leu	Thr	Lys	
			100					105					110			
Thr	Val	Ile	Ile	Ala	Val	Gly	Gly	Gly	Ile	Leu	Lys	Pro	Gln	Lys	Asn	
		115				120						125				
Arg	Ala	Arg	Arg	Gly	Arg	Thr	Ile									
						135										

<210> 239
 <211> 312
 <212> PRT
 <213> Campylobacter jejuni

Met	Leu	Asp	Val	Ala	Ile	Ile	Gly	Gly	Gly	Pro	Ala	Gly	Leu	Ser	Ala	
1				5				10						15		
Gly	Leu	Tyr	Ala	Thr	Arg	Gly	Gly	Leu	Lys	Asn	Val	Val	Met	Phe	Glu	
			20					25					30			
Lys	Gly	Met	Pro	Gly	Gly	Gln	Ile	Thr	Ser	Ser	Ser	Glu	Ile	Glu	Asn	
		35					40					45				
Tyr	Pro	Gly	Val	Ala	Gln	Val	Met	Asp	Gly	Ile	Ser	Phe	Met	Ala	Pro	
	50					55					60					
Trp	Ser	Glu	Gln	Cys	Met	Arg	Phe	Gly	Leu	Lys	His	Glu	Met	Val	Gly	
65				70				75							80	
Val	Glu	Gln	Ile	Leu	Lys	Asn	Ser	Asp	Gly	Ser	Phe	Thr	Ile	Lys	Leu	
				85				90					95			
Glu	Gly	Gly	Lys	Thr	Glu	Leu	Ala	Lys	Ala	Val	Ile	Val	Cys	Thr	Gly	
			100					105					110			
Ser	Ala	Pro	Lys	Lys	Ala	Gly	Phe	Lys	Gly	Glu	Asp	Glu	Phe	Phe	Gly	
			115			120						125				

Lys	Gly	Val	Ser	Thr	Cys	Ala	Thr	Cys	Asp	Gly	Phe	Phe	Tyr	Lys	Asn
130						135					140				
Lys	Glu	Val	Ala	Val	Leu	Gly	Gly	Gly	Asp	Thr	Ala	Leu	Glu	Glu	Ala
145					150				155						160
Leu	Tyr	Leu	Ala	Asn	Ile	Cys	Ser	Lys	Ile	Tyr	Leu	Ile	His	Arg	Arg
				165					170					175	
Asp	Glu	Phe	Arg	Ala	Ala	Pro	Ser	Thr	Val	Glu	Lys	Val	Lys	Lys	Asn
			180					185					190		
Glu	Lys	Ile	Glu	Leu	Ile	Thr	Ser	Ala	Ser	Val	Asp	Glu	Val	Tyr	Gly
		195				200						205			
Asp	Lys	Met	Gly	Val	Ala	Gly	Val	Lys	Val	Lys	Leu	Lys	Asp	Gly	Ser
210						215					220				
Ile	Arg	Asp	Leu	Asn	Val	Pro	Gly	Ile	Phe	Thr	Phe	Val	Gly	Leu	Asn
225				230						235					240
Val	Arg	Asn	Glu	Ile	Leu	Lys	Gln	Asp	Asp	Ser	Lys	Phe	Leu	Cys	Asn
				245				250						255	
Met	Glu	Glu	Gly	Gly	Gln	Val	Ser	Val	Asp	Leu	Lys	Met	Gln	Thr	Ser
			260					265					270		
Val	Ala	Gly	Leu	Phe	Ala	Ala	Gly	Asp	Leu	Arg	Lys	Asp	Ala	Pro	Lys
		275					280					285			
Gln	Val	Ile	Cys	Ala	Ala	Gly	Asp	Gly	Ala	Val	Ala	Ala	Leu	Ser	Ala
290						295					300				
Met	Ala	Tyr	Ile	Glu	Ser	Leu	His								
305					310										

<210> 240
 <211> 348
 <212> PRT
 <213> *Caulobacter crescentus*

<400> 240

Met	Ser	Pro	Leu	Arg	Arg	Ile	His	Thr	Ile	Ser	Pro	Pro	Met	Ser	Thr
1				5					10					15	
Leu	Ser	Pro	Arg	Gln	Thr	Arg	Cys	Leu	Ile	Ile	Gly	Ser	Gly	Pro	Ala
			20					25					30		
Gly	Tyr	Thr	Ala	Ala	Ile	Tyr	Ala	Ala	Arg	Ala	Leu	Leu	Lys	Pro	Val
		35				40						45			
Leu	Ile	Ala	Gly	Ile	Gln	Pro	Gly	Gly	Gln	Leu	Thr	Ile	Thr	Thr	Asp
50					55						60				
Val	Glu	Asn	Tyr	Pro	Gly	Phe	Ala	Asp	Val	Ile	Gln	Gly	Pro	Trp	Leu
65				70						75					80
Met	Asp	Gln	Met	Arg	Ala	Gln	Ala	Glu	His	Val	Gly	Thr	Glu	Phe	Val
			85					90						95	
Ser	Asp	Ile	Val	Thr	Ser	Val	Asp	Leu	Ser	Lys	Arg	Pro	Phe	Thr	Val
			100					105					110		
Lys	Thr	Asp	Ser	Gly	Gln	Asp	Trp	Ile	Ala	Glu	Thr	Ile	Ile	Ile	Ala
		115				120						125			
Thr	Gly	Ala	Gln	Ala	Lys	Trp	Leu	Gly	Leu	Glu	Ser	Glu	Ala	Lys	Phe
		130				135					140				
Gln	Gly	Phe	Gly	Val	Ser	Ala	Cys	Ala	Thr	Cys	Asp	Gly	Phe	Phe	Tyr
145				150						155					160
Arg	Asn	Lys	Asp	Val	Ile	Val	Val	Gly	Gly	Gly	Asn	Thr	Ala	Val	Glu
			165					170						175	
Glu	Ala	Leu	Phe	Leu	Thr	Ser	Phe	Ala	Ser	Lys	Val	Thr	Leu	Val	His
			180					185					190		
Arg	Lys	Asp	Glu	Leu	Arg	Ala	Glu	Lys	Ile	Leu	Gln	Glu	Arg	Leu	Leu
		195				200						205			
Ala	His	Pro	Lys	Ile	Glu	Val	Ile	Trp	Asp	Ser	Val	Ile	Asp	Glu	Val
		210				215					220				
Leu	Gly	Gln	Thr	Asp	Pro	Met	Gly	Val	Thr	Gly	Ala	Arg	Leu	Lys	Asn
225				230						235					240
Val	Lys	Thr	Gly	Glu	Thr	Gln	Glu	Val	Ala	Ala	Asp	Gly	Val	Phe	Ile
			245					250						255	
Ala	Ile	Gly	His	Ala	Pro	Ser	Ser	Glu	Leu	Phe	Ala	Gly	Gln	Leu	Glu
			260					265					270		
Thr	Gly	Ser	Gly	Gly	Tyr	Leu	Lys	Val	Lys	Pro	Gly	Thr	Ala	Ser	Thr

		275					280				285					
Ala	Ile	Glu	Gly	Val	Tyr	Ala	Ala	Gly	Asp	Val	Thr	Asp	Asp	Val	Tyr	
	290					295					300					
Arg	Gln	Ala	Val	Thr	Ala	Ala	Gly	Met	Gly	Cys	Met	Ala	Ala	Leu	Glu	
305					310					315					320	
Ala	Val	Arg	Phe	Leu	Ala	Glu	Glu	Asp	His	Lys	Ala	Ala	His	His	Pro	
			325						330					335		
Ile	Ser	His	Ala	Glu	Ala	Asn	Lys	Ile	Gly	Val	Trp					
		340						345								

<210> 241
 <211> 285
 <212> PRT
 <213> Clostridium acetobutylicum

<400> 241																
Met	Glu	Arg	Tyr	Asp	Ile	Ala	Ile	Ile	Gly	Ser	Gly	Pro	Ala	Gly	Leu	
1				5					10					15		
Ala	Ser	Ala	Ile	Asn	Ala	Lys	Thr	Arg	Asn	Lys	Ser	Val	Ile	Val	Phe	
			20					25					30			
Gly	Ser	Ser	Asp	Leu	Ser	Lys	Lys	Leu	Thr	Leu	Ala	Pro	Val	Ile	Asn	
		35				40						45				
Asn	Tyr	Leu	Gly	Phe	Tyr	Gly	Ile	Arg	Gly	Ala	Glu	Leu	Gln	Glu	Lys	
50						55					60					
Phe	Lys	Glu	His	Ile	Asp	Asn	Met	Gly	Ile	Gln	Ile	Glu	Asn	Val	Lys	
65				70						75					80	
Val	Asn	Asn	Ile	Tyr	Ala	Met	Gly	Glu	Tyr	Phe	Ser	Ile	Met	Thr	Ser	
			85					90						95		
Lys	Asp	Thr	Tyr	Glu	Ala	Ser	Lys	Val	Ile	Leu	Ala	Met	Gly	Met	Glu	
		100						105					110			
His	Thr	Lys	Pro	Leu	Lys	Gly	Glu	Asp	Lys	Phe	Leu	Gly	Arg	Gly	Val	
		115					120					125				
Gly	Tyr	Cys	Ala	Thr	Cys	Asp	Ala	Pro	Leu	Tyr	Lys	Gly	Lys	Ile	Val	
	130					135					140					
Thr	Ile	Val	Gly	Tyr	Asn	Lys	Glu	Ala	Glu	Ser	Glu	Ala	Asn	Tyr	Leu	
145					150					155					160	
Ala	Glu	Leu	Ala	Ser	Lys	Val	Tyr	Tyr	Val	Pro	Arg	Tyr	Lys	Asp	Glu	
			165						170					175		
Tyr	Gln	Leu	Val	Ser	Ala	Val	Glu	Ile	Val	Lys	Asp	Val	Pro	Val	Glu	
			180					185					190			
Ile	Val	Gly	Asp	Lys	Lys	Val	Glu	Lys	Leu	Lys	Leu	Lys	Ser	Arg	Glu	
	195						200					205				
Leu	Glu	Thr	Asp	Gly	Val	Phe	Val	Leu	Lys	Asp	Ser	Ala	Pro	Pro	Glu	
	210					215					220					
Gln	Leu	Val	Pro	Gly	Leu	Tyr	Val	Glu	Asp	Gly	His	Ile	Lys	Val	Asn	
225					230					235					240	
Arg	Lys	Met	Glu	Thr	Asn	Ile	Asp	Gly	Cys	Tyr	Ala	Ala	Gly	Asp	Cys	
			245						250					255		
Thr	Gly	Lys	Pro	Tyr	Gln	Tyr	Met	Lys	Ala	Val	Gly	Glu	Gly	Gln	Val	
		260						265					270			
Ala	Ala	Leu	Asn	Ala	Val	Glu	Lys	Leu	Tyr	Thr	Lys	Ala				
		275					280					285				

<210> 242
 <211> 291
 <212> PRT
 <213> Clostridium acetobutylicum

<400> 242																
Met	Asp	Arg	Tyr	Asp	Ile	Ala	Ile	Ile	Gly	Ser	Gly	Pro	Ala	Gly	Leu	
1				5					10					15		
Ser	Ala	Ala	Ile	Asn	Ala	Val	Ile	Arg	Asn	Lys	Lys	Val	Ile	Leu	Phe	
			20					25					30			
Gly	Ser	Asp	Asn	Leu	Ser	Asn	Lys	Leu	Leu	Lys	Ala	Pro	Lys	Ile	Asn	
		35					40					45				

Asn Tyr Leu Gly Ile Tyr Asp Val Ser Gly Lys Glu Leu Lys Glu Lys
 50 55 60
 Phe Leu Glu His Leu Lys Tyr Met Asn Ile Glu Ile Lys Asn Glu Lys
 65 70 75 80
 Val Asn Ser Val Tyr Ser Met Gly Asp Tyr Phe Ala Leu Ser Leu Asn
 85 90 95
 Gln Lys Met Tyr Glu Ala Thr Ser Ile Ile Ile Ala Ser Gly Val Glu
 100 105 110
 Phe Ser Lys Pro Leu Asn Gly Glu Asp Glu Leu Leu Gly Lys Gly Val
 115 120 125
 Gly Tyr Cys Ala Thr Cys Asp Ala Pro Leu Tyr Lys Gly Lys Thr Val
 130 135 140
 Ala Ile Val Gly Tyr Thr Lys Glu Ala Glu Glu Glu Ala Asn Tyr Val
 145 150 155 160
 Ser Glu Leu Ala Gly Lys Leu Tyr Tyr Ile Pro Met Tyr Lys Asp Lys
 165 170 175
 Val Ser Leu Lys Glu Val Ile Glu Val Val Glu Asp Lys Pro Ile Ser
 180 185 190
 Ile Leu Gly Lys Asp Lys Val Ser Gly Leu Gln Met Ser Lys Gly Glu
 195 200 205
 Ile Asn Thr Asp Ala Val Phe Ile Ile Lys Asp Ser Val Ser Pro Gly
 210 215 220
 Lys Leu Val Pro Gly Leu Leu Met Asn Gly Glu His Ile Ala Val Asp
 225 230 235 240
 Ile Asp Met Lys Thr Asn Ile Glu Gly Cys Phe Ala Ala Gly Asp Cys
 245 250 255
 Ala Gly Arg Pro Tyr Gln Tyr Ile Lys Ser Ala Gly Gln Gly Gln Ile
 260 265 270
 Ala Ala Leu Ser Ala Val Ser Tyr Ile Asp Lys Ile Lys Leu Asn Lys
 275 280 285
 Lys Ile Ile
 290

<210> 243
 <211> 314
 <212> PRT
 <213> Clostridium sticklandii

<400> 243
 Met Ser Lys Ile Tyr Asp Leu Val Ile Ile Gly Ala Gly Pro Ala Gly
 1 5 10 15
 Leu Ser Ala Gly Leu Tyr Gly Ala Arg Gly Lys Met Ser Thr Leu Ile
 20 25 30
 Ile Glu Lys Asp Lys Thr Gly Gly Gln Ile Val Thr Thr Glu Glu Val
 35 40 45
 Ala Asn Tyr Pro Gly Ser Ile His Asp Ala Ser Gly Pro Ser Leu Ile
 50 55 60
 Ala Arg Met Ala Glu Gln Ala Asp Glu Phe Gly Thr Glu Arg Ile Lys
 65 70 75 80
 Asp Ser Ile Val Asp Phe Asp Phe Thr Gly Lys Ile Lys Ile Leu Lys
 85 90 95
 Gly Thr Lys Ala Glu Tyr Gln Ala Lys Ala Val Ile Val Ala Thr Gly
 100 105 110
 Ala Ser Pro Lys Lys Leu Asp Cys Pro Gly Glu Lys Glu Leu Thr Gly
 115 120 125
 Lys Gly Val Ser Tyr Cys Ala Thr Cys Asp Ala Asp Phe Phe Gln Asp
 130 135 140
 Met Glu Val Phe Val Val Gly Gly Gly Asp Ser Ala Val Glu Glu Ala
 145 150 155 160
 Met Tyr Leu Thr Lys Phe Ala Ser Lys Val Thr Ile Val His Arg Arg
 165 170 175
 Asp Ser Leu Arg Ala Ala Lys Ser Ile Gln Asp Lys Ala Phe Ala Asn
 180 185 190
 Pro Lys Ile Asp Phe Lys Trp Asp Ser Val Ile Lys Glu Ile Lys Gly
 195 200 205
 Asp Gly Ile Val Glu Ser Val Val Phe Glu Asn Thr Lys Thr Gly Glu

210	215	220
Leu Ser Glu His Phe	Ala Asp Glu Glu Phe Gly	Thr Phe Gly Ile Phe
225	230	235
Val Phe Thr Gly Tyr	Ile Pro Gln Thr Asp	Ile Phe Lys Asp Lys Val
	245	250
Asp Met Asn Gln Ser	Gly Tyr Phe Val Thr	Asn Gln Asn Met Glu Thr
	260	265
Asn Ile Pro Gly Val	Phe Ala Ala Gly Asp	Cys Arg Glu Lys Val Leu
	275	280
Arg Gln Val Val Thr	Ala Thr Ala Asp Gly	Ala Ile Ala Ala Ile Met
	290	295
Ala Glu Lys Tyr Ile	Glu His Glu Gly Leu	
305	310	

<210> 244
 <211> 325
 <212> PRT
 <213> Deinococcus radiodurans

<400> 244
Met Thr Ala Pro Thr Ala His Asp Tyr Asp Val Val Ile Ile Gly Gly
1 5 10 15
Gly Pro Ala Gly Leu Thr Ala Ala Ile Tyr Thr Gly Arg Ala Gln Leu
20 25 30
Ser Thr Leu Ile Leu Glu Lys Gly Met Pro Gly Gly Gln Ile Ala Trp
35 40 45
Ser Glu Glu Val Glu Asn Phe Pro Gly Phe Pro Glu Pro Ile Ala Gly
50 55 60
Met Glu Leu Ala Gln Arg Met His Gln Gln Ala Glu Lys Phe Gly Ala
65 70 75 80
Lys Val Glu Met Asp Glu Val Gln Gly Val Gln His Asp Ala Thr Ser
85 90 95
His Pro Tyr Pro Phe Thr Val Arg Gly Tyr Asn Gly Glu Tyr Arg Ala
100 105 110
Lys Ala Val Ile Leu Ala Thr Gly Ala Asp Pro Arg Lys Leu Gly Ile
115 120 125
Pro Gly Glu Asp Asn Phe Trp Gly Lys Gly Val Ser Thr Cys Ala Thr
130 135 140
Cys Asp Gly Phe Phe Tyr Lys Gly Lys Lys Val Val Val Ile Gly Gly
145 150 155 160
Gly Asp Ala Ala Val Glu Glu Gly Met Phe Leu Thr Lys Phe Ala Asp
165 170 175
Glu Val Thr Val Ile His Arg Arg Asp Thr Leu Arg Ala Asn Lys Val
180 185 190
Ala Gln Ala Arg Ala Phe Ala Asn Pro Lys Met Lys Phe Ile Trp Asp
195 200 205
Thr Ala Val Glu Glu Ile Gln Gly Ala Asp Ser Val Ser Gly Val Lys
210 215 220
Leu Arg Asn Leu Lys Thr Gly Glu Val Ser Glu Leu Ala Thr Asp Gly
225 230 235 240
Val Phe Ile Phe Ile Gly His Val Pro Asn Thr Ala Phe Val Lys Asp
245 250 255
Thr Val Ser Leu Arg Asp Asp Gly Tyr Val Asp Val Arg Asp Glu Ile
260 265 270
Tyr Thr Asn Ile Pro Met Leu Phe Ala Ala Gly Asp Val Ser Asp Tyr
275 280 285
Ile Tyr Arg Gln Leu Ala Thr Ser Val Gly Ala Gly Thr Arg Ala Ala
290 295 300
Met Met Thr Glu Arg Gln Leu Ala Ala Leu Glu Val Glu Gly Glu Glu
305 310 315 320
Val Thr Ala Ala Asp
325

<210> 245
 <211> 61

<212> PRT
 <213> Enterococcus faecalis

<220>
 <221> VARIANT
 <222> 33, 45, 46
 <223> Xaa = Any Amino Acid

<400> 245
 Met Met Asp Thr Leu Ile Ile Glu Lys Asp Lys Ile Gly Gly Gln Val
 1 5 10 15
 Thr Thr Thr Ser Glu Ile Val Asn Tyr Pro Ala Ile Arg His Thr Thr
 20 25 30
 Xaa Pro Glu Leu Met Gly Glu Met Arg Ile Gln Ala Xaa Xaa Phe Gly
 35 40 45
 Val Ala Phe Thr Lys Asp Glu Ile Ile Asp Val Asp Phe
 50 55 60

<210> 246
 <211> 205
 <212> PRT
 <213> Halobacterium sp

<400> 246
 Met Thr Glu Asp Ser His Asp Leu Val Ile Ala Gly Ser Gly Ile Ala
 1 5 10 15
 Gly Leu Ser Ala Ala Val Tyr Ala Ala Arg Ala Asp Leu Glu Pro Leu
 20 25 30
 Val Leu Glu Gly Asp Glu Pro Gly Gly Gln Leu Thr Leu Thr Thr Asp
 35 40 45
 Val Glu Asn Tyr Leu Gly Phe Pro Asp Gly Val Gly Gly Met Asp Leu
 50 55 60
 Val Gln Arg Gly Lys Glu Gln Ala Glu Gln Phe Gly Ala Gln Phe Glu
 65 70 75 80
 His Gly Arg Ile Glu Ala Ala Asp Leu Asp Gly Gln Pro Leu Glu Leu
 85 90 95
 Ser Leu Ser Thr Gly Asp Thr Leu Tyr Thr Arg Ser Leu Ile Val Ala
 100 105 110
 Thr Gly Ala Ser Ala Arg Trp Val Gly Ala Glu Asn Glu Asp Glu Leu
 115 120 125
 Met Gly Ala Gly Leu Ser Thr Cys Ala Thr Cys Asp Gly Ala Phe His
 130 135 140
 Arg Gly Asp Asp Val Leu Val Val Gly Gly Gly Asp Ser Ala Met Glu
 145 150 155 160
 Glu Ala Leu Phe Leu Ala Lys Phe Ala Asp Ser Val Thr Val Val His
 165 170 175
 Arg Arg Glu Glu Leu Arg Ala Ser Glu Ile Met Ala Asp Arg Ala Arg
 180 185 190
 Asp His Asp Asp Val Gln Phe Arg Trp Asn Thr Glu Leu
 195 200 205

<210> 247
 <211> 362
 <212> PRT
 <213> Halobacterium sp

<400> 247
 Met Thr Glu Ala Thr Ala Asp Arg Thr Ala Leu Thr Asp Gly Gly Arg
 1 5 10 15
 Asp Val Val Glu His Arg Gln Leu Val Ile Val Gly Ser Gly Ile Ala
 20 25 30
 Ala Leu Ser Ala Ala Thr Tyr Ala Ala Arg Ser Asn Asn Asp Pro Leu
 35 40 45
 Leu Phe Glu Gly Asp Glu Pro Gly Gly Gln Leu Thr Leu Thr Ser Glu
 50 55 60

Val	Glu	Asn	Tyr	Pro	Gly	Phe	Pro	Glu	Gly	Ile	Ala	Gly	Ala	Glu	Leu
65					70					75					80
Ile	Gln	Glu	Met	Lys	Thr	Gln	Ala	Thr	Arg	Phe	Gly	Ala	Glu	Val	Glu
				85					90					95	
His	Gly	Ile	Val	Glu	Ser	Val	Asp	Asp	Ser	Gly	Arg	Pro	Phe	Arg	Leu
			100					105					110		
Thr	Leu	Thr	Asn	Gly	Asp	Val	Tyr	Thr	Ala	Asp	Ala	Val	Ile	Val	Ala
		115					120					125			
Ser	Gly	Ala	Ser	Ala	Arg	Thr	Leu	Gly	Ile	Pro	Gly	Glu	Asp	Glu	Leu
	130					135					140				
Met	Gly	Gln	Gly	Val	Ser	Thr	Cys	Ala	Thr	Cys	Asp	Gly	Ala	Phe	Phe
145					150					155					160
Arg	Gly	Glu	Asp	Met	Ile	Val	Val	Gly	Gly	Gly	Asp	Ala	Ala	Ala	Glu
				165					170						175
Glu	Ala	Ser	Phe	Leu	Thr	Lys	Phe	Ala	Asp	Thr	Val	Tyr	Leu	Val	His
			180					185					190		
Arg	Arg	Asp	Glu	Leu	Arg	Ala	Glu	Asp	Tyr	Trp	Ala	Asp	Arg	Ile	Arg
		195					200					205			
Glu	His	Val	Ala	Asp	Gly	Asp	Ile	Glu	Val	Leu	Trp	Asn	Thr	Glu	Ala
	210					215					220				
Val	Glu	Val	His	Gly	Ser	Pro	Glu	Glu	Gly	Val	Thr	Gly	Ala	Ser	Leu
225					230					235					240
Val	Arg	His	Pro	Glu	Gly	His	Pro	Thr	Ala	Lys	Leu	Asp	Ala	Asp	Glu
				245					250					255	
Thr	Glu	Gln	Leu	Glu	Leu	Asp	Ile	Gly	Ala	Phe	Phe	Ile	Ala	Ile	Gly
			260					265					270		
His	Thr	Pro	Asn	Thr	Ser	Phe	Leu	Ala	Asp	Thr	Gly	Val	Val	Cys	Asp
		275					280					285			
Asp	Ala	Gly	Tyr	Val	Gln	Thr	Val	Gly	Gly	Ala	Gly	Gly	Gly	Gln	Thr
	290					295					300				
Lys	Thr	Asp	Val	Thr	Gly	Val	Phe	Gly	Ala	Gly	Asp	Val	Val	Asp	Tyr
305					310					315					320
His	Tyr	Gln	Gln	Ala	Val	Thr	Ala	Ala	Gly	Met	Gly	Ser	Lys	Ala	Ala
				325					330					335	
Ile	Asp	Ala	Asp	Glu	Tyr	Leu	Glu	Ser	Val	Ala	Asp	Gly	Val	Thr	Gly
			340					345					350		
Glu	Thr	Ala	Asp	Ala	Thr	Pro	Ala	Asp	Asp						
		355					360								

<210> 248
 <211> 294
 <212> PRT
 <213> Halobacterium

<400> 248															
Met	Pro	Thr	Gln	Asp	Gly	Glu	Arg	Arg	Asp	Val	Val	Ile	Val	Gly	Gly
1				5					10					15	
Gly	Pro	Ala	Gly	Cys	Ala	Ala	Gly	Val	Phe	Thr	Ala	Arg	Tyr	Gly	Leu
			20					25					30		
Asp	Thr	Val	Val	Phe	Asp	Arg	Gly	Asn	Ala	Ala	Leu	Pro	Arg	Cys	Ala
		35					40					45			
Phe	Val	Glu	Asn	Tyr	Pro	Gly	Phe	Pro	Gly	Gly	Ile	Asp	Val	Pro	Thr
	50					55					60				
Leu	Arg	Gly	Leu	Phe	His	Asp	His	Ala	Glu	Thr	Ala	Gly	Cys	Asp	Leu
65					70					75					80
Ile	Ala	Asp	Thr	Val	Glu	Ser	Val	Asp	Arg	Pro	Ser	Asp	Asp	Asp	Thr
			85						90				95		
Gly	Phe	Val	Val	Glu	Thr	Gln	Asp	Gly	Arg	Arg	Val	Tyr	Thr	Asp	Thr
			100					105					110		
Val	Leu	Ala	Ala	Ala	Trp	Tyr	Asp	Gly	Ser	Tyr	Leu	Arg	Pro	Val	Val
		115					120					125			
Gly	Asp	Ser	Ala	Phe	Glu	Thr	His	Asp	His	His	Gly	Glu	Ser	Arg	Glu
	130					135					140				
Arg	Phe	Asp	Asp	Ala	Tyr	Ala	Asp	Ala	Asp	Gly	Arg	Thr	Pro	Val	Asp
145					150					155					160
Gly	Leu	Tyr	Val	Ala	Ser	Pro	Gly	Gly	Gln	Arg	Ser	Ala	Gln	Ala	Val

Ile	Ala	Ala	Gly	165	Asn	Gly	Ala	His	Val	170	Ala	Arg	Cys	Leu	Leu	175	Ala	Asp
Arg	Lys	Arg	180	Ala	Arg	Gly	Tyr	Pro	185	Glu	Gly	Val	Ala	Pro	190	His	Tyr	Asp
Trp	Lys	Arg	195	Arg	Glu	Ser	Asp	Leu	200	Ser	Gly	Glu	Trp	205	Ala	Asp	Arg	Asp
Arg	Trp	Arg	210	Glu	Trp	Phe	Ala	Ala	215	Glu	Ala	Gly	Asp	Asp	His	Asp	Leu	
Asp	Asp	Asp	225	Glu	Phe	Ala	Ala	Leu	230	Arg	Ala	Ala	His	Leu	235	Asp	Arg	Thr
Phe	Asp	Ala	245	Thr	Leu	Ser	Ala	Asp	250	Ala	Ile	Glu	Glu	Arg	255	Ala	Glu	Ala
Gly	Ala	His	260	Arg	Leu	Leu	Asp	His	265	Ile	Asp	Asp	Asp	His	270	Ile	Glu	Ser
Tyr	Arg	Glu	275	Gln	Arg	Asp			280						285			
			290															

<210> 249
 <211> 324
 <212> PRT
 <213> Helicobacter pylori

Met	Asn	Gln	Glu	Ile	Leu	Asp	Val	Leu	Ile	Val	Gly	Ala	Gly	Pro	Gly			
1				5					10					15				
Gly	Ile	Ala	Thr	Ala	Val	Glu	Cys	Glu	Ile	Ala	Gly	Val	Lys	Lys	Val			
			20					25					30					
Leu	Leu	Cys	Glu	Lys	Thr	Glu	Ser	His	Ser	Gly	Met	Leu	Glu	Lys	Phe			
		35					40					45						
Tyr	Lys	Ala	Gly	Lys	Arg	Ile	Asp	Lys	Asp	Tyr	Lys	Lys	Gln	Val	Val			
	50					55				60								
Glu	Leu	Lys	Gly	His	Ile	Pro	Phe	Lys	Asp	Ser	Phe	Lys	Glu	Glu	Thr			
65				70						75					80			
Leu	Glu	Asn	Phe	Thr	Asn	Leu	Leu	Lys	Glu	His	His	Ile	Thr	Pro	Ser			
			85					90						95				
Tyr	Lys	Thr	Asp	Ile	Glu	Ser	Val	Lys	Lys	Glu	Gly	Glu	Tyr	Phe	Lys			
			100					105					110					
Ile	Thr	Thr	Thr	Ser	Asn	Thr	Thr	Tyr	His	Ala	Lys	Phe	Val	Val	Val			
		115					120					125						
Ala	Ile	Gly	Lys	Met	Gly	Gln	Pro	Asn	Arg	Pro	Thr	Ala	Tyr	Lys	Ile			
	130				135					140								
Pro	Val	Ala	Leu	Ser	Lys	Gln	Val	Val	Phe	Ser	Ile	Asn	Asp	Cys	Lys			
145				150					155					160				
Glu	Asn	Glu	Lys	Thr	Leu	Val	Ile	Gly	Gly	Gly	Asn	Ser	Ala	Val	Glu			
			165					170						175				
Tyr	Ala	Ile	Ala	Leu	Cys	Lys	Thr	Thr	Pro	Thr	Thr	Leu	Asn	Tyr	Arg			
			180					185					190					
Lys	Lys	Glu	Phe	Ser	Arg	Ile	Asn	Glu	Asp	Asn	Ala	Lys	Asn	Leu	Gln			
		195					200					205						
Glu	Val	Leu	Asn	Asn	Asn	Thr	Leu	Lys	Ser	Lys	Leu	Gly	Val	Asp	Ile			
	210					215					220							
Glu	Ser	Leu	Glu	Glu	Asp	Asn	Thr	Gln	Ile	Lys	Val	Asn	Phe	Thr	Asp			
225				230					235					240				
Asn	Thr	Ser	Glu	Ser	Phe	Asp	Arg	Leu	Leu	Tyr	Ala	Ile	Gly	Gly	Ser			
			245					250					255					
Thr	Pro	Leu	Glu	Phe	Phe	Lys	Arg	Cys	Ser	Leu	Glu	Leu	Asp	Pro	Ser			
			260					265					270					
Thr	Asn	Ile	Pro	Val	Val	Lys	Glu	Asn	Leu	Glu	Ser	Asn	Asn	Ile	Pro			
		275				280						285						
Asn	Leu	Phe	Ile	Val	Gly	Asp	Ile	Leu	Phe	Lys	Ser	Gly	Ala	Ser	Ile			
	290				295						300							
Ala	Thr	Ala	Leu	Asn	His	Gly	Tyr	Asp	Val	Ala	Ile	Glu	Ile	Ala	Lys			
305				310						315					320			
Arg	Leu	His	Ser															

<210> 250
 <211> 128
 <212> PRT
 <213> Klebsiella oxytoca

<400> 250
 Met Gly Thr Ala Lys His Ser Lys Leu Leu Ile Leu Gly Ser Gly Pro
 1 5 10 15
 Ala Gly Tyr Thr Ala Ala Val Tyr Ala Ala Arg Ala Asn Leu Gln Pro
 20 25 30
 Val Leu Ile Thr Gly Met Glu Lys Gly Gly Gln Leu Thr Thr Thr Thr
 35 40 45
 Glu Val Glu Asn Trp Pro Gly Asp Pro Asn Asp Leu Thr Gly Pro Leu
 50 55 60
 Leu Met Glu Arg Met His Glu His Ala Thr Lys Phe Glu Thr Glu Ile
 65 70 75 80
 Ile Phe Asp His Ile Asn Ser Val Asp Leu Gln Asn Arg Pro Phe Arg
 85 90 95
 Leu Val Gly Asp Ser Gly Glu Tyr Thr Cys Asp Ala Pro Asp Tyr Arg
 100 105 110
 Tyr Arg Arg Ile Ser Ala Leu Ser Gly Ser Ala Ile Gly Arg Arg Val
 115 120 125

<210> 251
 <211> 79
 <212> PRT
 <213> Lactococcus lactis

<400> 251
 Met Gln Glu Leu Asp Leu Ile Ile Val Gly Ala Gly Pro Val Gly Leu
 1 5 10 15
 Tyr Ala Ala Phe Tyr Ala Gly Met Arg Gly Leu Ser Val Ala Ile Ile
 20 25 30
 Glu Ser Ala Gln Val Pro Gly Gly Gln Pro Gln Asn Leu Tyr Pro Glu
 35 40 45
 Lys Leu Ile Tyr Asp Ile Ala Gly Leu Pro Ala Val Thr Gly Ala Asp
 50 55 60
 Leu Thr Lys Asn Leu Leu Glu Gln Leu Ala Gln Ile Ser His Arg
 65 70 75

<210> 252
 <211> 321
 <212> PRT
 <213> Lactococcus lactis

<400> 252
 Met Gln Glu Leu Asp Leu Ile Ile Val Gly Ala Gly Pro Val Gly Leu
 1 5 10 15
 Tyr Ala Ala Phe Tyr Ala Gly Met Arg Gly Leu Ser Val Ala Ile Ile
 20 25 30
 Glu Ser Ala Gln Val Pro Gly Gly Gln Pro Gln Asn Leu Tyr Pro Glu
 35 40 45
 Lys Leu Ile Tyr Asp Ile Ala Gly Leu Pro Ala Val Thr Gly Ala Asp
 50 55 60
 Leu Thr Lys Asn Leu Leu Glu Gln Leu Ala Gln Ile Ser His Arg Leu
 65 70 75 80
 Phe Leu Gly Glu Ser Val Gln Lys Ile Glu Lys Glu Glu Gly Ile Phe
 85 90 95
 Ser Val Thr Thr Asp Lys Ser Thr Arg Arg Ala Lys Gly Val Leu Leu
 100 105 110
 Thr Thr Gly Ala Gly Leu Leu Lys Pro Arg Lys Leu Gly Ile Asp Asn
 115 120 125
 Glu Glu Thr Leu Ala Asn Glu Gly Lys Ile Ser Tyr Phe Ile Thr Ser
 130 135 140

Leu	Lys	Glu	Phe	Glu	Gly	Lys	Asn	Val	Ala	Val	Phe	Gly	Gly	Gly	Asp
145					150					155					160
Ser	Ala	Leu	Asp	Trp	Ser	Leu	Met	Leu	Glu	Lys	Val	Ala	Lys	Asn	Val
				165					170						175
His	Leu	Val	His	Arg	Arg	Thr	Ala	Phe	Arg	Gly	His	Glu	Ile	Thr	Val
			180					185						190	
Asp	Arg	Val	Met	Asn	Ser	Asn	Val	Gln	Val	His	Thr	Pro	Tyr	Thr	Phe
		195					200					205			
Ser	Asn	Leu	Ile	Glu	Asn	Glu	Leu	Glu	Leu	Lys	Lys	Ile	Lys	Ser	Glu
	210					215					220				
Glu	Ser	Leu	Asn	Phe	Ser	Ile	Asp	Lys	Ile	Leu	Val	Asn	Tyr	Gly	Phe
225					230					235					240
Leu	Thr	Asn	Gln	Val	Thr	Leu	Ala	Glu	Asn	Leu	Glu	Val	Ser	Arg	Asn
				245					250					255	
Gly	Arg	Val	Lys	Ala	Asp	Ser	Met	Met	Gln	Ser	Asn	Ile	Glu	Gly	Leu
			260					265					270		
Tyr	Val	Ala	Gly	Asp	Ala	Ser	Asp	Tyr	Pro	Gly	Lys	Met	Pro	Leu	Met
		275					280					285			
Ser	Val	Gly	Phe	Gly	Glu	Ala	Val	His	Ala	Ile	Asn	Ala	Met	Thr	Lys
	290					295					300				
Lys	Leu	Glu	Phe	Asp	His	Pro	Leu	Arg	Gly	Gly	His	Ser	Ser	Ser	Ile
305					310					315					320
Phe															

<210> 253
 <211> 308
 <212> PRT
 <213> Lactococcus lactis

<400> 253

Met	Thr	Glu	Lys	Lys	Tyr	Asp	Val	Val	Ile	Ile	Gly	Ser	Gly	Pro	Ala
1				5					10					15	
Gly	Met	Thr	Ala	Ala	Met	Tyr	Thr	Ala	Arg	Ser	Glu	Met	Lys	Thr	Leu
			20					25					30		
Leu	Leu	Glu	Arg	Gly	Val	Pro	Gly	Gly	Gln	Met	Asn	Asn	Thr	Ala	Glu
		35					40					45			
Ile	Glu	Asn	Tyr	Pro	Gly	Tyr	Glu	Thr	Ile	Met	Gly	Pro	Glu	Leu	Ser
	50					55					60				
Met	Lys	Met	Ala	Glu	Pro	Leu	Glu	Gly	Leu	Gly	Val	Glu	Asn	Ala	Tyr
65					70					75					80
Gly	Phe	Val	Thr	Ala	Ile	Glu	Asp	His	Gly	Asp	Tyr	Lys	Lys	Ile	Ile
				85					90					95	
Thr	Glu	Asp	Asp	Glu	Phe	Val	Thr	Lys	Ser	Ile	Ile	Ile	Ala	Thr	Gly
			100					105					110		
Ala	Asn	His	Arg	Lys	Leu	Glu	Ile	Pro	Gly	Glu	Glu	Glu	Tyr	Gly	Ala
		115					120					125			
Arg	Gly	Val	Ser	Tyr	Cys	Ala	Val	Cys	Asp	Gly	Ala	Phe	Phe	Arg	Asn
	130					135					140				
Gln	Glu	Ile	Leu	Val	Ile	Gly	Gly	Gly	Asp	Ser	Ala	Val	Glu	Glu	Ala
145					150					155					160
Leu	Tyr	Leu	Thr	Arg	Phe	Gly	Gln	Ser	Val	Thr	Ile	Met	His	Arg	Arg
				165					170					175	
Asp	Lys	Leu	Arg	Ala	Gln	Glu	Ile	Ile	Gln	Gln	Arg	Ala	Phe	Lys	Glu
			180					185					190		
Glu	Lys	Ile	Asn	Phe	Ile	Trp	Asp	Ser	Val	Pro	Met	Glu	Ile	Lys	Gly
		195					200					205			
Asp	Asp	Lys	Lys	Val	Gln	Ser	Val	Val	Tyr	Lys	Asn	Val	Lys	Thr	Gly
	210					215					220				
Glu	Val	Thr	Glu	Lys	Ala	Phe	Gly	Gly	Ile	Phe	Ile	Tyr	Val	Gly	Leu
225					230					235					240
Asp	Pro	Val	Ala	Glu	Phe	Ala	Gly	Asn	Leu	Gly	Ile	Thr	Asp	Glu	Ala
				245					250					255	
Gly	Trp	Ile	Ile	Thr	Asp	Asp	His	Met	Arg	Thr	Ser	Leu	Pro	Gly	Ile
			260					265					270		
Phe	Ala	Val	Gly	Asp	Val	Arg	Gln	Lys	Asp	Phe	Arg	Gln	Ile	Thr	Thr

	275		280		285
Ala	Ile Gly Asp Gly Ala Gln	Ala Ala Gln Glu Ala Tyr Lys Phe Val			
	290	295	300		
Ala	Glu Leu Asp				
305					

<210> 254
 <211> 44
 <212> PRT
 <213> Lactococcus lactis

<400>	254
Met	Gln Glu Leu Asp Leu Ile Ile Val Gly Ala Gly Pro Val Gly Leu
1	5 10 15
Tyr	Ala Ala Phe Tyr Ala Gly Met Arg Gly Leu Ser Val Ala Ile Ile
	20 25 30
Glu	Ser Ala Gln Val Pro Gly Gly Gln Pro Gln Asn
	35 40

<210> 255
 <211> 339
 <212> PRT
 <213> Listeria monocytogenes

<400>	255
Glu	Phe Tyr Ser Tyr Lys Lys Glu Ile Asn Arg Tyr Leu Ala Glu Glu
1	5 10 15
Asp	Ser Ala Ser Ala Cys Asp Ile Leu Arg Lys Val Ile Asp Glu Lys
	20 25 30
Pro	Asn Phe Trp Pro Ala Tyr Asn Gln Leu Ala Ser Leu Tyr Phe Glu
	35 40 45
Gln	Leu Lys Glu Glu Glu Gly Val Arg Val Leu Ser Asp Leu Leu Ser
	50 55 60
Arg	Asn Pro Gly Asn Leu Leu Gly Ile Cys Asp Leu Phe Ile Tyr His
65	70 75 80
Phe	Tyr Lys Gly Asn Arg Lys Glu Ala Asp Glu Leu Tyr Leu Glu Leu
	85 90 95
Arg	Asp Val Leu Pro Val Leu Ala His His Lys Glu Lys Leu Gly Leu
	100 105 110
Ile	His Ala Met Met Gly Glu Tyr Glu Glu Ala Asp Asp Leu Leu Glu
	115 120 125
Gln	Val Ala Asp Leu Glu Val Thr Glu Arg Ser Lys Tyr Tyr Tyr Phe
	130 135 140
Arg	Ala Lys Ser Ser Tyr Tyr Leu Gly Asp Val Glu Gly Ala Lys Met
145	150 155 160
Phe	Trp His Ser Phe Leu Glu Cys Asp Leu Tyr Glu Asp Val Arg Phe
	165 170 175
Pro	Trp Glu Gln Glu Pro Asp Leu Thr Asn Asp Thr Arg Leu Val Leu
	180 185 190
Glu	Met Leu Gln Glu Glu Asp Asp Leu Thr His Met Leu Gly Val Tyr
	195 200 205
Ala	Leu Thr Ile Ser Gly Asn Arg Pro Glu Leu Val Leu Phe His Pro
	210 215 220
Leu	Leu Asp Met Ser Asp Trp Ser Tyr Met Glu His Leu Met Phe Thr
225	230 235 240
Asn	Phe Asp Tyr Phe Pro Asp Gly Ala Ile Glu Gln Asn Gly Tyr Leu
	245 250 255
Ile	Ala Lys Ala Met Ile Ile Leu Lys Glu Asn Gly Ile Leu Leu Asn
	260 265 270
Glu	Glu Tyr Met Ala Leu Tyr Lys Gln Met Phe Ser Leu Val Leu Ile
	275 280 285
Asp	Ala Gly Lys Asp Leu Ile Leu Gly Arg Tyr Thr Ile Glu Thr Val
	290 295 300
Ala	Ser Ala Ile Ala Lys Leu Phe Leu Pro His Leu Lys Leu Gln Leu
305	310 315 320

Val Glu Glu Phe Glu Cys Ser Lys Cys Ala Arg Asp Ile Glu Arg Val
 325 330 335
 Leu Ser Arg

<210> 256
 <211> 303
 <212> PRT
 <213> Methanothermobacter thermautotrophicus

<400> 256
 Met Met Thr Asp Tyr Asp Met Ile Val Ile Gly Ala Gly Pro Ala Gly
 1 5 10 15
 Leu Thr Ala Gly Ile Tyr Gly Gly Arg Gln Gly Ser Ser Val Leu Met
 20 25 30
 Leu Asp Lys Gly Pro Ala Gly Gly Leu Gly Leu Glu Val Pro Met Met
 35 40 45
 Glu Asn Tyr Pro Gly Phe Glu Met Ile Ala Gly Met Ser Leu Val Thr
 50 55 60
 Lys Met Lys Lys Gln Ala Thr Ala Val Ala Glu Leu Arg Glu Met Glu
 65 70 75 80
 Glu Val Lys Glu Ile Glu Lys Gly Asp Val Phe Thr Val Lys Thr Ser
 85 90 95
 Arg Asp Thr Tyr Thr Ala Ser Ala Ile Ile Phe Ala Thr Gly Ser Lys
 100 105 110
 His Arg Gln Leu Gly Val Pro Gly Glu Asn Asp Leu Leu Gly Arg Gly
 115 120 125
 Val Cys Tyr Cys Ala Thr Cys Asp Gly Pro Leu Tyr Lys Gly Arg Lys
 130 135 140
 Val Leu Met Val Gly Gly Asn Ser Ala Ala Gln Glu Ala Val Phe
 145 150 155 160
 Leu Lys Asn Ile Gly Cys Asp Val Ser Ile Val His Arg Arg Asp Glu
 165 170 175
 Leu Arg Ala Asp Lys Tyr Leu Gln Asp Lys Leu Arg Glu Met Glu Ile
 180 185 190
 Pro Val Ile Trp Asn Ser Val Val Lys Glu Ile Gly Gly Asp Glu Arg
 195 200 205
 Val Glu Glu Val Ile Ile His Asn Arg Val Thr Gly Arg Asp Glu Thr
 210 215 220
 Leu Lys Val Asp Gly Val Phe Ile Ala Ile Gly Glu Glu Pro Leu Asn
 225 230 235 240
 Gln Leu Ala Val Asp Leu Gly Val Glu Val Asp Lys Gly Gly Tyr Ile
 245 250 255
 Ile Thr Asp Lys Phe Gln Arg Thr Asn Val Pro Leu Val Tyr Ala Ala
 260 265 270
 Gly Asp Ile Thr Gly Gly Leu Asn Gln Trp Val Thr Ala Cys Ala Glu
 275 280 285
 Gly Ala Ile Ala Ala Thr Tyr Ala Tyr Arg Glu Ile Gln Ser Tyr
 290 295 300

<210> 257
 <211> 179
 <212> PRT
 <213> Bacillus subtilis

<400> 257
 Met Val Ile Ser Gly Gly Gly Asp Thr Ala Val Asp Trp Ala Asn Glu
 1 5 10 15
 Leu Glu Pro Ile Ala Ala Ser Val Thr Val Val His Arg Arg Glu Glu
 20 25 30
 Phe Gly Gly Met Glu Ser Ser Val Thr Lys Met Lys Gln Ser Ser Val
 35 40 45
 Arg Val Leu Thr Pro Tyr Arg Leu Glu Gln Leu Asn Gly Asp Glu Glu
 50 55 60
 Gly Ile Lys Ser Val Thr Val Cys His Thr Glu Ser Gly Gln Arg Lys

65					70					75				80
Asp	Ile	Glu	Ile	Asp	Glu	Leu	Ile	Ile	Asn	His	Gly	Phe	Lys	Ile
				85					90					95
Leu	Gly	Pro	Met	Met	Glu	Trp	Gly	Leu	Glu	Ile	Glu	Glu	Gly	Arg
			100					105					110	
Lys	Ala	Asp	Arg	His	Met	Arg	Thr	Asn	Leu	Pro	Gly	Val	Phe	Val
		115					120					125		
Gly	Asp	Ala	Ala	Phe	Tyr	Glu	Ser	Lys	Leu	Arg	Leu	Ile	Ala	Gly
	130					135					140			
Phe	Thr	Glu	Gly	Pro	Thr	Ala	Val	Asn	Ser	Ala	Lys	Ala	Tyr	Leu
145					150					155				160
Pro	Lys	Ala	Glu	Asn	Met	Ala	Met	Tyr	Ser	Thr	His	His	Lys	Lys
				165					170					175
Val	His	Lys												

<210> 258
 <211> 307
 <212> PRT
 <213> Mycoplasma pulmonis

<400> 258														
Met	Ser	Gln	Asn	Lys	Ile	Tyr	Asp	Val	Ala	Ile	Ile	Gly	Ala	Gly
1				5					10					15
Gly	Ala	Leu	Thr	Ala	Ala	Ile	Tyr	Thr	Ser	Arg	Gly	Asn	Leu	Asp
			20					25					30	
Val	Phe	Ile	Asp	Asn	Ala	Ala	Pro	Gly	Gly	Lys	Leu	Ile	Tyr	Ala
		35					40					45		
Lys	Ile	Glu	Asn	Trp	Pro	Gly	Asp	Thr	Ile	Val	Lys	Gly	Thr	Asp
	50					55					60			
Ala	Ile	Arg	Phe	Phe	Glu	His	Ala	Gln	Ala	Phe	Gly	Ala	Lys	Tyr
65					70					75				80
Tyr	Gly	Lys	Val	Val	Asp	Leu	Ile	Asn	Ile	Lys	Asp	Asp	Leu	Lys
				85				90					95	
Leu	Val	Leu	Glu	Asp	Gly	Lys	Lys	Ile	Gln	Ala	Lys	Ser	Val	Ile
			100					105					110	
Ala	Ser	Gly	Met	Val	Ser	Arg	Lys	Pro	Arg	Glu	Ile	Leu	Asn	Tyr
		115					120					125		
Glu	Phe	Glu	Asn	Arg	Gly	Val	Ser	Tyr	Cys	Val	Ile	Cys	Asp	Gly
	130					135					140			
Met	Tyr	Gly	His	Asn	Pro	Ala	Ile	Ile	Ile	Gly	Gly	Gly	Asn	Ser
145					150					155				160
Val	Glu	Glu	Gly	Thr	Phe	Leu	Ser	Ser	Ile	Ala	Ser	Lys	Val	Tyr
				165					170					175
Ile	Val	Arg	Asp	Ser	Asp	Phe	Ile	Ala	Glu	Lys	Ala	Leu	Val	Asn
			180					185					190	
Leu	Lys	Ser	Arg	Lys	Asn	Ile	Glu	Val	Leu	Phe	Asn	Ala	Ser	Val
		195					200				205			
Glu	Leu	His	Gly	Lys	Asp	Ala	Leu	Glu	Tyr	Ala	Ile	Val	Asn	His
	210					215					220			
Gly	Lys	Glu	Val	Lys	Leu	Glu	Val	Ala	Ser	Leu	Phe	Pro	Tyr	Ile
225					230					235				240
Phe	Leu	Pro	Ser	Ala	Glu	Tyr	Ala	Lys	Asn	Ala	Gly	Val	Leu	Glu
				245					250					255
Asn	Gly	Phe	Ile	Lys	Thr	Asp	Glu	Phe	Met	Glu	Thr	Lys	Val	Pro
			260					265					270	
Ile	Tyr	Ala	Ile	Gly	Asp	Ile	Arg	Ile	Lys	Asp	Ile	Arg	Gln	Ile
	275						280					285		
Thr	Ala	Thr	Ser	Asp	Gly	Thr	Ile	Ala	Gly	Lys	Ile	Leu	Thr	Asn
	290					295					300			
Ile	Lys	Lys												
305														

<210> 259
 <211> 316

<212> PRT
 <213> Neisseria meningitidis

<400> 259

Met	Ser	Gln	His	Arg	Lys	Leu	Ile	Ile	Leu	Gly	Ser	Gly	Pro	Ala	Gly
1				5					10					15	
Tyr	Thr	Ala	Ala	Val	Tyr	Ala	Ala	Arg	Ala	Asn	Leu	Asn	Pro	Val	Ile
			20					25					30		
Ile	Thr	Gly	Ile	Ala	Gln	Gly	Gly	Gln	Leu	Met	Thr	Thr	Thr	Glu	Val
		35				40						45			
Asp	Asn	Trp	Pro	Ala	Asp	Ala	Asp	Gly	Val	Gln	Gly	Thr	Glu	Leu	Met
	50				55						60				
Ala	Arg	Phe	Leu	Ala	His	Ala	Glu	Arg	Phe	Gly	Thr	Glu	Ile	Ile	Phe
65					70				75						80
Asp	Gln	Ile	Asn	Ala	Val	Asp	Leu	Gln	Lys	Arg	Pro	Phe	Thr	Leu	Lys
			85					90						95	
Gly	Asp	Met	Gly	Glu	Tyr	Thr	Cys	Asp	Ala	Leu	Ile	Val	Ala	Thr	Gly
		100						105					110		
Ala	Ser	Ala	Lys	Tyr	Leu	Gly	Leu	Pro	Ser	Glu	Glu	Ala	Phe	Ala	Gly
		115				120						125			
Lys	Gly	Val	Ser	Ala	Cys	Ala	Thr	Cys	Asp	Gly	Phe	Phe	Tyr	Lys	Asn
	130					135					140				
Gln	Asp	Val	Ala	Val	Val	Gly	Gly	Gly	Asn	Thr	Ala	Val	Glu	Glu	Ala
145					150					155					160
Leu	Tyr	Leu	Ala	Asn	Ile	Ala	Lys	Thr	Val	Thr	Leu	Ile	His	Arg	Arg
				165					170					175	
Ser	Glu	Phe	Arg	Ala	Glu	Lys	Ile	Met	Ile	Asp	Lys	Leu	Met	Lys	Arg
			180					185					190		
Val	Glu	Glu	Gly	Lys	Ile	Ile	Leu	Lys	Leu	Glu	Ser	Asn	Leu	Gln	Glu
		195					200					205			
Val	Leu	Gly	Asp	Asp	Arg	Gly	Val	Asn	Gly	Ala	Leu	Leu	Lys	Asn	Asn
	210					215					220				
Asp	Gly	Ser	Glu	Gln	Gln	Ile	Ala	Val	Ser	Gly	Ile	Phe	Ile	Ala	Ile
225					230					235					240
Gly	His	Lys	Pro	Asn	Thr	Asp	Ile	Phe	Lys	Gly	Gln	Leu	Glu	Met	Asp
				245				250						255	
Glu	Ala	Gly	Tyr	Leu	Lys	Thr	Lys	Gly	Gly	Thr	Ala	Asp	Asn	Val	Gly
			260					265					270		
Ala	Thr	Asn	Ile	Glu	Gly	Val	Trp	Ala	Ala	Gly	Asp	Val	Lys	Asp	His
		275					280					285			
Thr	Tyr	Arg	Gln	Ala	Ile	Thr	Ser	Ala	Ala	Ser	Gly	Cys	Gln	Ala	Ala
	290					295					300				
Leu	Asp	Ala	Glu	Arg	Trp	Leu	Gly	Ser	Gln	Asn	Ile				
305					310					315					

<210> 260
 <211> 316
 <212> PRT
 <213> Neisseria meningitidis

<400> 260

Met	Ser	Gln	His	Arg	Lys	Leu	Ile	Ile	Leu	Gly	Ser	Gly	Pro	Ala	Gly
1				5					10					15	
Tyr	Thr	Ala	Ala	Val	Tyr	Ala	Ala	Arg	Ala	Asn	Leu	Asn	Pro	Val	Ile
			20					25					30		
Ile	Thr	Gly	Ile	Ala	Gln	Gly	Gly	Gln	Leu	Met	Thr	Thr	Thr	Glu	Val
		35				40						45			
Asp	Asn	Trp	Pro	Ala	Asp	Ala	Asp	Gly	Val	Gln	Gly	Pro	Glu	Leu	Met
	50				55						60				
Ala	Arg	Phe	Leu	Ala	His	Ala	Glu	Arg	Phe	Gly	Thr	Glu	Ile	Ile	Phe
65					70				75						80
Asp	Gln	Ile	Asn	Ala	Val	Asp	Leu	Gln	Lys	Arg	Pro	Phe	Thr	Leu	Lys
			85					90						95	
Gly	Asp	Met	Gly	Glu	Tyr	Thr	Cys	Asp	Ala	Leu	Ile	Val	Ala	Thr	Gly
		100						105					110		
Ala	Ser	Ala	Lys	Tyr	Leu	Gly	Leu	Pro	Ser	Glu	Glu	Ala	Phe	Ala	Gly

Lys	Gly	115	Ser	Ala	Cys	Ala	120	Thr	Cys	Asp	Gly	Phe	125	Phe	Tyr	Lys	Asn
	130	Val				135	Gly	Gly	Gly	Asn	Thr	140	Ala	Val	Glu	Glu	Ala
Gln	Asp	Val	Ala	Val	Val	150						155					160
145							Ala	Lys	Thr	Val	Thr	Leu	Ile	His	Arg	Arg	
Leu	Tyr	Leu	Ala	Asn	Ile	165				170							175
							Ala	Glu	Lys	Ile	Met	Ile	Asp	Lys	Leu	Met	Lys
Ser	Glu	Phe	Arg	Ala	Glu	180				185							190
							Lys	Ile	Ile	Leu	Lys	Leu	Glu	Ser	Asn	Leu	Gln
Val	Glu	Glu	Gly	Lys	Ile	195				200							205
							Arg	Gly	Val	Asn	Gly	Ala	Leu	Leu	Lys	Asn	Asn
Val	Leu	Gly	Asp	Asp	Arg	210											215
							Gln	Ile	Ala	Val	Ser	Gly	Ile	Phe	Ile	Ala	Ile
Asp	Gly	Ser	Glu	Gln	Gln	225											230
							Thr	Asp	Ile	Phe	Lys	Gly	Gln	Leu	Glu	Met	Asp
Gly	His	Lys	Pro	Asn	Thr	245											250
							Lys	Thr	Lys	Gly	Gly	Thr	Ala	Asp	Asn	Val	Gly
Glu	Ala	Gly	Tyr	Leu	Lys	260											265
							Val	Trp	Ala	Ala	Gly	Asp	Val	Lys	Asp	His	
Ala	Thr	Asn	Ile	Glu	Gly	275											280
							Ile	Thr	Ser	Ala	Ala	Ser	Gly	Cys	Gln	Ala	Ala
Thr	Tyr	Arg	Gln	Ala	Ile	290											295
							Trp	Leu	Gly	Ser	Gln	Asn	Ile				300
Leu	Asp	Ala	Glu	Arg	Trp	305											310
																	315

<210> 261

<211> 316

<212> PRT

<213> Pseudomonas aeruginosa

<400> 261

Met	Ser	Glu	Val	Lys	His	Ser	Arg	Leu	Ile	Ile	Leu	Gly	Ser	Gly	Pro
1				5					10					15	
Ala	Gly	Tyr	Thr	Ala	Ala	Val	Tyr	Ala	Ala	Arg	Ala	Asn	Leu	Lys	Pro
			20					25					30		
Val	Val	Ile	Thr	Gly	Ile	Gln	Pro	Gly	Gly	Gln	Leu	Thr	Thr	Thr	Thr
			35				40					45			
Glu	Val	Asp	Asn	Trp	Pro	Gly	Asp	Val	Glu	Gly	Leu	Thr	Gly	Pro	Ala
	50					55					60				
Leu	Met	Thr	Arg	Met	Gln	Gln	His	Ala	Glu	Arg	Phe	Asp	Thr	Glu	Ile
65					70					75					80
Val	Tyr	Asp	His	Ile	His	Thr	Ala	Glu	Leu	Gln	Gln	Arg	Pro	Phe	Thr
				85					90					95	
Leu	Lys	Gly	Asp	Ser	Gly	Thr	Tyr	Thr	Cys	Asp	Ala	Leu	Ile	Ile	Ala
			100					105					110		
Thr	Gly	Ala	Ser	Ala	Gln	Tyr	Leu	Gly	Met	Ser	Ser	Glu	Glu	Ala	Phe
			115				120					125			
Met	Gly	Lys	Gly	Val	Ser	Ala	Cys	Ala	Thr	Cys	Asp	Gly	Phe	Phe	Tyr
	130					135					140				
Arg	Asn	Gln	Val	Val	Cys	Val	Val	Gly	Gly	Gly	Asn	Thr	Ala	Val	Glu
145					150					155					160
Glu	Ala	Leu	Tyr	Leu	Ala	Asn	Ile	Ala	Lys	Glu	Val	His	Leu	Ile	His
				165					170					175	
Arg	Arg	Asp	Lys	Leu	Arg	Ser	Glu	Lys	Ile	Leu	Gln	Asp	Lys	Leu	Phe
			180					185					190		
Asp	Lys	Ala	Glu	Asn	Gly	Asn	Val	His	Leu	His	Trp	Asn	Thr	Thr	Leu
		195					200					205			
Asp	Glu	Val	Leu	Gly	Asp	Ala	Ser	Gly	Val	Thr	Gly	Val	Arg	Leu	Lys
	210					215					220				
Ser	Thr	Ile	Asp	Gly	Ser	Thr	Ser	Glu	Leu	Ser	Leu	Ala	Gly	Val	Phe
225					230					235					240
Ile	Ala	Ile	Gly	His	Lys	Pro	Asn	Thr	Asp	Leu	Phe	Gln	Gly	Gln	Leu
				245					250					255	
Glu	Met	Arg	Asp	Gly	Tyr	Leu	Arg	Ile	His	Gly	Gly	Ser	Glu	Gly	Asn
			260					265					270		

Ala	Thr	Gln	Thr	Ser	Ile	Glu	Gly	Val	Phe	Ala	Ala	Gly	Asp	Val	Ala
		275					280					285			
Asp	His	Val	Tyr	Arg	Gln	Ala	Ile	Thr	Ser	Ala	Gly	Ala	Gly	Cys	Met
	290				295						300				
Ala	Ala	Leu	Asp	Ala	Glu	Lys	Tyr	Leu	Asp	Asp	His				
305					310					315					

<210> 262
 <211> 316
 <212> PRT
 <213> *Pseudomonas aeruginosa*

<400> 262															
Met	Pro	Asp	Thr	Leu	Arg	His	Ala	Arg	Val	Ile	Ile	Leu	Gly	Ser	Gly
1				5					10					15	
Pro	Ala	Gly	Tyr	Ser	Ala	Ala	Val	Tyr	Ala	Ala	Arg	Ala	Asn	Leu	Lys
			20					25					30		
Pro	Leu	Leu	Ile	Thr	Gly	Met	Gln	Ala	Gly	Gly	Gln	Leu	Thr	Thr	Thr
		35				40						45			
Thr	Glu	Val	Asp	Asn	Trp	Pro	Gly	Asp	Pro	His	Gly	Leu	Thr	Gly	Pro
	50				55						60				
Ala	Leu	Met	Gln	Arg	Met	Gln	Glu	His	Ala	Glu	Arg	Phe	Glu	Thr	Glu
65					70					75					80
Ile	Val	Phe	Asp	His	Ile	His	Ala	Val	Asp	Leu	Ala	Gly	Lys	Pro	Phe
				85					90					95	
Thr	Leu	Arg	Gly	Asp	Asn	Gly	Thr	Tyr	Thr	Cys	Asp	Ala	Leu	Ile	Val
			100					105					110		
Ala	Thr	Gly	Ala	Ser	Ala	Arg	Tyr	Leu	Gly	Leu	Pro	Ser	Glu	Gln	Ala
		115					120					125			
Phe	Met	Gly	Lys	Gly	Val	Ser	Ala	Cys	Ala	Thr	Cys	Asp	Gly	Phe	Phe
	130					135					140				
Tyr	Arg	Asn	Arg	Glu	Val	Ala	Val	Ile	Gly	Gly	Gly	Asn	Thr	Ala	Val
145					150					155					160
Glu	Glu	Ala	Leu	Tyr	Leu	Ala	Asn	Ile	Ala	Ser	Arg	Val	Thr	Leu	Val
				165					170					175	
His	Arg	Arg	Glu	Thr	Phe	Arg	Ala	Glu	Lys	Ile	Leu	Gln	Asp	Lys	Leu
			180					185					190		
Gln	Ala	Arg	Val	Ala	Glu	Gly	Lys	Ile	Val	Leu	Lys	Leu	Asn	Ala	Glu
		195					200					205			
Val	Asp	Glu	Val	Leu	Gly	Asp	Thr	Met	Gly	Val	Thr	Gly	Val	Arg	Leu
	210					215					220				
Lys	Thr	Arg	Asp	Gly	Gly	Ser	Glu	Glu	Ile	Ala	Val	Asp	Gly	Met	Phe
225					230					235					240
Val	Ala	Ile	Gly	His	Thr	Pro	Asn	Thr	Ser	Leu	Phe	Glu	Gly	Gln	Leu
				245					250					255	
Ala	Leu	Lys	Asp	Gly	Tyr	Leu	Val	Val	Asn	Gly	Gly	Arg	Glu	Gly	Asn
			260					265					270		
Ala	Thr	Ala	Thr	Asn	Val	Pro	Gly	Val	Phe	Ala	Ala	Gly	Asp	Val	Ala
		275					280					285			
Asp	His	Val	Tyr	Arg	Gln	Ala	Ile	Thr	Ser	Ala	Gly	Ala	Gly	Cys	Met
	290				295						300				
Ala	Ala	Leu	Asp	Val	Glu	Arg	Tyr	Leu	Asp	Ser	Leu				
305					310					315					

<210> 263
 <211> 345
 <212> PRT
 <213> *Pyrococcus abyssi*

<400> 263															
Met	Leu	Leu	Asn	Ile	His	Gln	Glu	Ser	Tyr	Val	Glu	Val	Val	Lys	Met
1				5					10					15	
Phe	Ser	Leu	Gly	Gly	Leu	Gly	Lys	Ser	Arg	Val	Asp	Glu	Ser	Lys	Val
			20					25					30		
Trp	Asp	Val	Ile	Ile	Ile	Gly	Ala	Gly	Pro	Ala	Gly	Tyr	Thr	Ala	Ala

Ser	Ala	Val	Asp	Trp	Ala	Ile	Thr	Leu	Ser	Glu	Ile	Ala	Asn	Lys	Ile
			165						170					175	
Tyr	Leu	Val	His	Arg	Arg	Asp	Lys	Phe	Thr	Ala	Ala	Thr	Glu	Ser	Val
			180					185						190	
Arg	Gln	Leu	Arg	His	Ile	Ala	Glu	Thr	Gly	Lys	Ile	Glu	Leu	Val	Thr
		195					200					205			
Gly	Tyr	Gln	Leu	Asn	Asn	Leu	Asp	Gly	His	Asn	Ser	Glu	Leu	Arg	Ser
	210					215					220				
Val	Ile	Val	Lys	Asp	Leu	Gln	Asn	Asn	Ile	Arg	Lys	Leu	Asp	Ala	Asn
225					230					235					240
Ile	Leu	Leu	Pro	Phe	Phe	Gly	Leu	Lys	Gln	Asp	Leu	Gly	Pro	Leu	Ala
				245					250					255	
Asn	Trp	Gly	Phe	Asn	Val	Arg	Leu	Gln	His	Ile	Glu	Val	Asp	Asn	Tyr
			260					265					270		
Tyr	Tyr	Gln	Thr	Asn	Ile	Lys	Gly	Ile	Tyr	Ala	Ile	Gly	Asp	Val	Ala
		275					280					285			
His	Tyr	Val	Gly	Lys	Leu	Lys	Leu	Ile	Ile	Thr	Gly	Phe	Ala	Glu	Ala
	290					295					300				
Ala	Cys	Ser	Leu	His	His	Ala	Tyr	Ser	Arg	Val	Phe	Asp	Gly	Lys	Ala
305					310					315					320
Leu	His	Phe	Glu	Tyr	Ser	Thr	Asn	Lys	Tyr	Glu	Gln	Lys	Gln		
				325					330						

<210> 265
 <211> 311
 <212> PRT
 <213> Staphylococcus aureus

<400> 265

Met	Thr	Glu	Ile	Asp	Phe	Asp	Ile	Ala	Ile	Ile	Gly	Ala	Gly	Pro	Ala
1				5					10					15	
Gly	Met	Thr	Ala	Ala	Val	Tyr	Ala	Ser	Arg	Ala	Asn	Leu	Lys	Thr	Val
			20					25					30		
Met	Ile	Glu	Arg	Gly	Ile	Pro	Gly	Gly	Gln	Met	Ala	Asn	Thr	Glu	Glu
		35					40					45			
Val	Glu	Asn	Phe	Pro	Gly	Phe	Glu	Met	Ile	Thr	Gly	Pro	Asp	Leu	Ser
	50					55					60				
Thr	Lys	Met	Phe	Glu	His	Ala	Lys	Lys	Phe	Gly	Ala	Val	Tyr	Gln	Tyr
65					70					75					80
Gly	Asp	Ile	Lys	Ser	Val	Glu	Asp	Lys	Gly	Glu	Tyr	Lys	Val	Ile	Asn
				85					90					95	
Phe	Gly	Asn	Lys	Glu	Leu	Thr	Ala	Lys	Ala	Val	Ile	Ile	Ala	Thr	Gly
			100					105					110		
Ala	Gly	Tyr	Lys	Lys	Ile	Gly	Val	Pro	Gly	Glu	Gln	Glu	Leu	Gly	Gly
		115					120					125			
Arg	Gly	Val	Ser	Tyr	Cys	Ala	Val	Cys	Asp	Gly	Ala	Phe	Phe	Lys	Asn
	130					135					140				
Lys	Arg	Leu	Phe	Val	Ile	Gly	Gly	Gly	Asp	Ser	Ala	Val	Glu	Glu	Gly
145					150					155					160
Thr	Phe	Leu	Thr	Lys	Phe	Ala	Asp	Lys	Val	Thr	Ile	Val	His	Arg	Arg
				165					170					175	
Asp	Glu	Leu	Arg	Ala	Gln	Arg	Ile	Leu	Gln	Asp	Arg	Ala	Phe	Lys	Asn
		180						185					190		
Asp	Lys	Ile	Asp	Phe	Ile	Trp	Ser	His	Thr	Leu	Lys	Ser	Ile	Asn	Glu
		195					200					205			
Lys	Asp	Gly	Lys	Val	Gly	Ser	Val	Thr	Leu	Thr	Ser	Thr	Lys	Asp	Gly
	210					215					220				
Ser	Glu	Glu	Thr	His	Glu	Ala	Asp	Gly	Val	Phe	Ile	Tyr	Ile	Gly	Met
225					230					235					240
Lys	Pro	Leu	Thr	Ala	Pro	Phe	Lys	Asp	Leu	Gly	Ile	Thr	Asn	Asp	Val
				245					250					255	
Gly	Tyr	Ile	Val	Thr	Lys	Asp	Asp	Met	Thr	Thr	Ser	Val	Pro	Gly	Ile
			260					265					270		
Phe	Ala	Ala	Gly	Asp	Val	Arg	Asp	Lys	Gly	Leu	Arg	Gln	Ile	Val	Thr
		275					280					285			
Ala	Thr	Gly	Asp	Gly	Ser	Ile	Ala	Ala	Gln	Ser	Thr	Ser	Gly	Tyr	Ile

290 295
 Glu His Leu Asn Asp Gln Ala
 305 310

300

<210> 266
 <211> 326
 <212> PRT
 <213> Streptomyces coelicolor

<400> 266
 Met Ser Thr Ala Lys Asp Val Arg Asp Val Ile Val Ile Gly Ser Gly
 1 5 10 15
 Pro Ala Gly Tyr Thr Ala Ala Leu Tyr Thr Ala Arg Ala Ser Leu Asn
 20 25 30
 Pro Leu Val Phe Gly Gly Ala Ile Phe Val Gly Gly Ser Leu Thr Thr
 35 40 45
 Thr Thr Glu Val Glu Asn Phe Pro Gly Phe Pro Asp Gly Val Gln Gly
 50 55 60
 Pro Glu Leu Met Glu Asn Met Arg Ala Gln Ala Glu Arg Phe Gly Ala
 65 70 75 80
 Glu Met Val Asp Asp Asp Ile Val Ala Val Asp Leu Thr Gly Asp Val
 85 90 95
 Lys Thr Val Thr Asp Thr Ala Gly Thr Val His Arg Ala Arg Thr Val
 100 105 110
 Ile Val Ala Thr Gly Ser Gly Tyr Arg Lys Leu Gly Val Pro Lys Glu
 115 120 125
 Asp Glu Leu Ser Gly Arg Gly Val Ser Trp Cys Ala Thr Cys Asp Gly
 130 135 140
 Phe Phe Phe Arg Asp Arg Asp Ile Val Val Val Gly Gly Gly Asp Thr
 145 150 155 160
 Ala Met Glu Glu Ala Thr Phe Leu Thr Arg Phe Ala Arg Ser Val Thr
 165 170 175
 Val Val His Arg Arg Ser Ala Leu Arg Ala Ser Gln Val Met Gln Asn
 180 185 190
 Arg Ala Phe Ser Glu Asp Lys Ile Ser Leu Ala Phe Asp Ser Glu Val
 195 200 205
 Ala Thr Leu His Glu Glu Asn Gly Met Leu Ser Gly Met Thr Leu Arg
 210 215 220
 Asp Thr Leu Thr Gly Glu Thr Arg Glu Leu Ala Thr Thr Gly Leu Phe
 225 230 235 240
 Ile Ala Ile Gly His Asp Pro Arg Thr Glu Leu Phe Lys Gly Gln Leu
 245 250 255
 His Leu Asp Ser Glu Gly Tyr Leu Met Val Glu Ser Pro Ser Thr Arg
 260 265 270
 Thr Asn Val Pro Gly Val Phe Gly Ala Gly Asp Val Val Asp His Thr
 275 280 285
 Tyr Arg Gln Ala Ile Thr Ala Ala Ser Ser Gly Cys Ala Ala Ala Leu
 290 295 300
 Asp Ala Glu Arg Tyr Leu Ala Ala Arg Ser Asp Thr Ser Val Ser Ala
 305 310 315 320
 Glu Val Val Ala Val Ala
 325

<210> 267
 <211> 558
 <212> PRT
 <213> Streptomyces coelicolor

<400> 267
 Met Ala Gln Ala Asp Gly Glu Thr Arg Thr Val Ile Met Thr Val Asp
 1 5 10 15
 Asp Asp Pro Gly Val Ser Arg Ala Val Ala Arg Asp Leu Arg Arg Arg
 20 25 30
 Tyr Gly Ala Thr Tyr Arg Ile Val Arg Ala Glu Ser Gly Glu Ser Ala
 35 40 45

Leu	Asp	Ala	Leu	Arg	Glu	Leu	Lys	Leu	Arg	Gly	Asp	Leu	Val	Ala	Val
50						55					60				
Ile	Leu	Ala	Asp	Tyr	Arg	Met	Pro	Gln	Met	Asn	Gly	Ile	Glu	Phe	Leu
65					70					75					80
Glu	Gln	Ala	Leu	Asp	Val	Tyr	Pro	Gly	Ala	Arg	Arg	Val	Leu	Leu	Thr
				85					90					95	
Ala	Tyr	Ala	Asp	Thr	Asn	Ala	Ala	Ile	Asp	Ala	Ile	Asn	Val	Val	Asp
			100					105					110		
Leu	Asp	His	Tyr	Leu	Leu	Lys	Pro	Trp	Asp	Pro	Pro	Glu	Glu	Lys	Leu
		115				120						125			
Tyr	Pro	Val	Leu	Asp	Asp	Leu	Leu	Gln	Ala	Trp	Arg	Ala	Gly	Asp	His
	130					135					140				
Arg	Pro	Val	Pro	Ser	Thr	Lys	Val	Val	Gly	His	Arg	Trp	Ser	Ala	Arg
145					150					155					160
Ser	Ser	Glu	Val	Arg	Glu	Phe	Leu	Ala	Arg	Asn	Gln	Val	Pro	Tyr	Arg
				165					170					175	
Trp	Tyr	Ser	Ser	Asp	Glu	Pro	Glu	Gly	Arg	Arg	Leu	Leu	Ser	Ala	Ala
			180					185					190		
Gly	Gln	Asp	Gly	Gln	Arg	Leu	Pro	Val	Val	Ile	Thr	Pro	Asp	Gly	Thr
		195					200					205			
Pro	Leu	Val	Glu	Pro	Glu	Ala	Pro	Glu	Leu	Ala	Ala	Arg	Val	Gly	Leu
	210					215					220				
Ala	Thr	Thr	Pro	Thr	Ser	Asp	Phe	Tyr	Asp	Leu	Val	Val	Ile	Gly	Gly
225					230					235					240
Gly	Pro	Ala	Gly	Leu	Gly	Ala	Ala	Val	Tyr	Gly	Ala	Ser	Glu	Gly	Leu
				245					250					255	
Arg	Thr	Val	Leu	Val	Glu	Arg	Ser	Ala	Thr	Gly	Gly	Gln	Ala	Gly	Gln
			260					265					270		
Ser	Ser	Arg	Ile	Glu	Asn	Tyr	Leu	Gly	Phe	Pro	Asp	Gly	Val	Ser	Gly
		275				280						285			
Gly	Gln	Leu	Thr	Glu	Arg	Ala	Arg	Arg	Gln	Ala	Ala	Arg	Phe	Gly	Ala
	290					295					300				
Glu	Ile	Leu	Thr	Ala	Arg	Glu	Val	Thr	Gly	Leu	Glu	Ala	Asn	Gly	Ala
305					310					315					320
Ala	Arg	Val	Val	Arg	Phe	Ser	Asp	Gly	Ser	Ala	Ile	Ala	Ala	His	Ser
				325					330					335	
Val	Ile	Leu	Ala	Thr	Gly	Val	Ser	Tyr	Arg	Gln	Leu	Thr	Ala	Pro	Gly
			340					345					350		
Thr	Glu	Asp	Leu	Ala	Gly	Cys	Gly	Val	Phe	Tyr	Gly	Ser	Ala	Leu	Thr
		355					360					365			
Glu	Ala	Ala	Ser	Cys	Gln	Gly	His	Asp	Val	Tyr	Ile	Val	Gly	Gly	Ala
	370					375					380				
Asn	Ser	Ala	Gly	Gln	Ala	Ala	Met	Tyr	Leu	Ala	Arg	Gly	Ala	Lys	Ser
385					390					395					400
Val	Thr	Leu	Leu	Val	Arg	Gly	Gly	Ser	Leu	Glu	Ala	Ser	Met	Ser	Tyr
			405					410						415	
Tyr	Leu	Ile	Gln	Gln	Ile	Glu	Glu	Thr	Pro	Asn	Ile	Arg	Val	Arg	Cys
			420					425					430		
Gly	Thr	Leu	Val	Glu	Gly	Ala	His	Gly	Asp	Gly	His	Leu	Glu	Arg	Leu
		435				440						445			
Thr	Leu	Arg	Asp	Ala	Ala	Ser	Gly	Ala	Thr	Glu	Leu	Val	Asp	Ala	Gln
	450					455					460				
Trp	Leu	Phe	Val	Phe	Ile	Gly	Ala	Ala	Pro	Leu	Thr	Asp	Trp	Leu	Asp
465					470					475					480
Gly	Thr	Val	Leu	Arg	Asp	Glu	Arg	Gly	Phe	Ile	Leu	Ala	Gly	Pro	Asp
				485					490					495	
Leu	Thr	Pro	Asp	Gly	Arg	Pro	Pro	Ala	Gly	Trp	Glu	Leu	Asp	Arg	Pro
			500					505					510		
Pro	Tyr	His	Leu	Glu	Thr	Ser	Val	Pro	Gly	Val	Phe	Val	Ala	Gly	Asp
		515					520					525			
Ala	Arg	Ala	Glu	Ser	Ala	Lys	Arg	Val	Ala	Ser	Ala	Val	Gly	Glu	Gly
	530					535					540				
Ala	Met	Ala	Val	Met	Leu	Val	His	Arg	Tyr	Leu	Glu	Gln	Ser		
545					550					555					

<210> 268

<211> 303
 <212> PRT
 <213> Streptococcus pneumoniae

<400> 268
 Met Tyr Asp Thr Ile Ile Ile Gly Ala Gly Pro Ala Gly Met Thr Ala
 1 5 10 15
 Ala Leu Tyr Ala Ala Arg Ser Asn Leu Lys Val Ala Leu Ile Glu Gly
 20 25 30
 Gly Leu Pro Gly Gly Gln Met Asn Asn Thr Ser Asp Ile Glu Asn Tyr
 35 40 45
 Pro Gly Tyr Ala Asn Ile Ser Gly Pro Glu Leu Ala Glu Lys Met Phe
 50 55 60
 Glu Pro Leu Glu Asn Leu Gly Val Glu His Ile Tyr Gly Tyr Val Glu
 65 70 75 80
 Asn Val Glu Asp His Gly Asp Phe Lys Lys Val Met Thr Asp Asp Gln
 85 90 95
 Thr Tyr Glu Thr Arg Thr Val Ile Val Ala Thr Gly Ser Lys His Arg
 100 105 110
 Pro Leu Gly Val Pro Gly Glu Glu Glu Leu Asn Ser Arg Gly Val Ser
 115 120 125
 Tyr Cys Ala Val Cys Asp Gly Ala Phe Phe Arg Asp Gln Asp Leu Leu
 130 135 140
 Val Val Gly Gly Gly Asp Ser Ala Val Glu Glu Ala Leu Phe Leu Thr
 145 150 155 160
 Arg Phe Ala Lys Thr Val Thr Ile Val His Arg Arg Asp Gln Leu Arg
 165 170 175
 Ala Gln Lys Val Leu Gln Asp Arg Ala Phe Ala Asn Glu Lys Ile Ser
 180 185 190
 Phe Ile Trp Asp Ser Val Val Arg Glu Ile Lys Gly Glu Asn Arg Val
 195 200 205
 Glu Ser Val Val Phe Glu Asn Val Lys Thr Gly Gln Val Thr Glu Gln
 210 215 220
 Ala Phe Gly Gly Val Phe Ile Tyr Val Gly Leu Asp Pro Leu Ser Asp
 225 230 235 240
 Phe Val Lys Glu Leu Asn Ile Gln Asp Gln Ala Gly Trp Ile Val Thr
 245 250 255
 Asp Asn His Met Lys Thr Ala Val Asp Gly Ile Phe Ala Val Gly Asp
 260 265 270
 Val Arg Leu Lys Asp Leu Arg Gln Val Thr Thr Ala Val Gly Asp Gly
 275 280 285
 Ala Ile Ala Gly Gln Glu Ala Tyr Lys Phe Ile Thr Glu His Ser
 290 295 300

<210> 269
 <211> 330
 <212> PRT
 <213> Streptococcus pyogenes

<400> 269
 Met Lys Asp Lys Ala Tyr Asp Ile Thr Ile Ile Gly Gly Gly Pro Ile
 1 5 10 15
 Gly Leu Phe Ala Ala Phe Tyr Ala Gly Leu Arg Gly Val Thr Val Lys
 20 25 30
 Ile Ile Glu Ser Leu Ser Glu Leu Gly Gly Gln Pro Ala Ile Leu Tyr
 35 40 45
 Pro Glu Lys Met Ile Tyr Asp Ile Pro Ala Tyr Pro Ser Leu Thr Gly
 50 55 60
 Val Glu Leu Thr Glu Asn Leu Ile Lys Gln Leu Ser Arg Phe Glu Asp
 65 70 75 80
 Arg Thr Thr Ile Cys Leu Lys Glu Glu Val Leu Thr Phe Asp Lys Val
 85 90 95
 Lys Gly Gly Phe Ser Ile Arg Thr Asn Lys Ala Glu His Phe Ser Lys
 100 105 110
 Ala Ile Ile Ile Ala Cys Gly Asn Gly Ala Phe Ala Pro Arg Thr Leu
 115 120 125

Gly	Leu	Glu	Ser	Glu	Glu	Asn	Phe	Ala	Asp	His	Asn	Leu	Phe	Tyr	Asn
130						135					140				
Val	His	Gln	Leu	Asp	Gln	Phe	Ala	Gly	Gln	Lys	Val	Val	Ile	Cys	Gly
145					150					155					160
Gly	Gly	Asp	Ser	Ala	Val	Asp	Trp	Ala	Leu	Ala	Leu	Glu	Asp	Ile	Ala
				165					170					175	
Glu	Ser	Val	Thr	Val	Val	His	Arg	Arg	Asp	Ala	Phe	Arg	Ala	His	Glu
			180					185					190		
His	Ser	Val	Glu	Leu	Leu	Lys	Ala	Ser	Thr	Val	Asn	Leu	Leu	Thr	Pro
		195					200					205			
Tyr	Val	Pro	Lys	Ala	Leu	Lys	Gly	Ile	Gly	Asn	Leu	Ala	Glu	Lys	Leu
	210					215					220				
Val	Ile	Gln	Lys	Val	Lys	Glu	Asp	Glu	Val	Leu	Glu	Leu	Glu	Leu	Asp
225					230					235					240
Ser	Leu	Ile	Val	Ser	Phe	Gly	Phe	Ser	Thr	Ser	Asn	Lys	Asn	Leu	Lys
				245					250					255	
Asn	Trp	Asn	Leu	Asp	Tyr	Lys	Arg	Ser	Ser	Ile	Thr	Val	Ser	Pro	Leu
			260					265					270		
Phe	Gln	Thr	Ser	Gln	Glu	Gly	Ile	Phe	Ala	Ile	Gly	Asp	Ala	Ala	Ala
		275					280					285			
Tyr	Asn	Gly	Lys	Val	Asp	Leu	Ile	Ala	Thr	Gly	Phe	Gly	Glu	Ala	Pro
	290					295					300				
Thr	Ala	Val	Asn	Gln	Ala	Ile	Asn	Tyr	Ile	Tyr	Pro	Asp	Arg	Asp	Asn
305					310					315					320
Arg	Val	Val	His	Ser	Thr	Ser	Leu	Ile	Asp						
				325					330						

<210> 270

<211> 325

<212> PRT

<213> Sulfolobus solfataricus

<400> 270

Met	Pro	Leu	Lys	Thr	Tyr	Asp	Thr	Ile	Ile	Val	Gly	Ala	Gly	Ile	Ala
1				5					10					15	
Gly	Leu	Ser	Ala	Ala	Leu	Tyr	Ser	Ser	Arg	Gln	Lys	Leu	Ser	Thr	Leu
			20					25					30		
Val	Leu	Ser	Lys	Asp	Leu	Gly	Gly	Gln	Leu	Thr	Leu	Thr	Asp	Leu	Ile
		35					40					45			
Glu	Asn	Tyr	Pro	Gly	Ile	Glu	Ser	Thr	Gly	Gly	Leu	Thr	Leu	Ala	Gln
	50					55					60				
Lys	Ile	Glu	Lys	Gln	Ala	Lys	Lys	Phe	Gly	Ala	Glu	Phe	Ile	Tyr	Gly
65				70					75						80
Glu	Glu	Val	Lys	Glu	Ile	Ala	Gln	Glu	Ser	Asp	Leu	Phe	Ile	Ile	Lys
			85					90					95		
Gly	Ile	Lys	Gly	Glu	Tyr	Ala	Gly	Arg	Ala	Leu	Ile	Leu	Ala	Phe	Gly
			100					105					110		
Lys	Thr	Pro	Arg	Glu	Ile	Asn	Val	Pro	Gly	Glu	Gln	Glu	Phe	Lys	Gly
		115					120					125			
Lys	Gly	Val	Ser	Tyr	Cys	Ala	Ile	Cys	Asp	Ala	Ala	Phe	Phe	Lys	Gly
	130					135					140				
Lys	Pro	Ala	Ala	Val	Ile	Gly	Glu	Gly	Glu	Pro	Gly	Ile	Glu	Ala	Ile
145					150					155					160
Glu	Leu	Leu	Ser	Asn	Tyr	Ala	Asn	Pro	Ala	Tyr	Tyr	Ile	Thr	Ser	Ser
			165					170						175	
Ser	Tyr	Leu	Ala	Gly	Glu	Glu	Glu	Ile	Val	Lys	Asn	Val	Val	Asn	Lys
			180					185					190		
Pro	Thr	Val	Lys	Ile	Leu	Thr	Ser	Ser	Arg	Val	Leu	Glu	Ile	Arg	Gly
		195					200					205			
Asn	Ser	Lys	Val	Glu	Glu	Leu	Val	Ile	Lys	Arg	Gly	Asp	Glu	Ile	Leu
	210					215					220				
Gln	Leu	Lys	Val	Asp	Gly	Val	Ile	Ile	Glu	Met	Gly	Tyr	Thr	Leu	Lys
225					230					235					240
Thr	Glu	Phe	Leu	Lys	Gly	Phe	Val	Glu	Leu	Asn	Glu	Lys	Gly	Glu	Ile
			245					250						255	
Ile	Val	Asp	Glu	Leu	Gly	Arg	Thr	Ser	Arg	Glu	Gly	Val	Phe	Ala	Ala

			260					265				270				
Gly	Asp	Val	Thr	Gln	Thr	Pro	Tyr	Lys	Gln	Ala	Val	Val	Ala	Ala	Ala	
		275					280					285				
Glu	Gly	Val	Lys	Ala	Ala	Leu	Ser	Ala	Tyr	Asn	Tyr	Ile	Arg	Ser	Lys	
	290					295					300					
Arg	Gly	Leu	Pro	Pro	Val	Thr	Val	Asp	Trp	Lys	Ala	Glu	Lys	Lys	Lys	
305					310					315					320	
Val	Ser	Phe	Arg	Leu												
				325												

<210> 271
 <211> 323
 <212> PRT
 <213> Sulfolobus solfataricus

<400> 271																
Met	Ser	Leu	Leu	Pro	Arg	Thr	Thr	Ser	Val	Lys	Pro	Gly	Glu	Lys	Phe	
1				5					10					15		
Asp	Val	Ile	Ile	Val	Gly	Leu	Gly	Pro	Ala	Ala	Tyr	Gly	Ala	Ala	Leu	
			20					25					30			
Tyr	Ser	Ala	Arg	Tyr	Met	Leu	Lys	Thr	Leu	Val	Ile	Gly	Glu	Thr	Pro	
		35					40					45				
Gly	Gly	Gln	Leu	Thr	Glu	Ala	Gly	Ile	Val	Asp	Asp	Tyr	Leu	Gly	Leu	
	50					55				60						
Ile	Glu	Ile	Gln	Ala	Ser	Asp	Met	Ile	Lys	Val	Phe	Asn	Lys	His	Ile	
65				70					75					80		
Glu	Lys	Tyr	Glu	Val	Pro	Val	Leu	Leu	Asp	Ile	Val	Glu	Lys	Ile	Glu	
			85						90					95		
Asn	Arg	Gly	Asp	Glu	Phe	Val	Val	Lys	Thr	Lys	Arg	Lys	Gly	Glu	Phe	
			100					105					110			
Lys	Ala	Asp	Ser	Val	Ile	Leu	Gly	Ile	Gly	Val	Lys	Arg	Arg	Lys	Leu	
		115					120					125				
Gly	Val	Pro	Gly	Glu	Gln	Glu	Phe	Ala	Gly	Arg	Gly	Ile	Ser	Tyr	Cys	
	130					135					140					
Ser	Val	Cys	Asp	Ala	Pro	Leu	Phe	Lys	Asn	Arg	Val	Val	Ala	Val	Ile	
145				150					155						160	
Gly	Gly	Gly	Asp	Ser	Ala	Leu	Glu	Gly	Ala	Glu	Ile	Leu	Ser	Ser	Tyr	
			165					170						175		
Ser	Thr	Lys	Val	Tyr	Leu	Ile	His	Arg	Arg	Asp	Thr	Phe	Lys	Ala	Gln	
			180					185					190			
Pro	Ile	Tyr	Val	Glu	Thr	Val	Lys	Lys	Lys	Pro	Asn	Val	Glu	Phe	Val	
		195					200					205				
Leu	Asn	Ser	Val	Val	Lys	Glu	Ile	Lys	Gly	Asp	Lys	Val	Val	Lys	Gln	
	210					215					220					
Val	Val	Val	Glu	Asn	Leu	Lys	Thr	Gly	Glu	Ile	Lys	Glu	Leu	Asn	Val	
225				230					235						240	
Asn	Gly	Val	Phe	Ile	Glu	Ile	Gly	Phe	Asp	Pro	Pro	Thr	Asp	Phe	Ala	
			245					250						255		
Lys	Ser	Asn	Gly	Ile	Glu	Thr	Asp	Thr	Asn	Gly	Tyr	Ile	Lys	Val	Asp	
			260				265						270			
Glu	Trp	Met	Arg	Thr	Ser	Val	Pro	Gly	Val	Phe	Ala	Ala	Gly	Asp	Cys	
		275					280					285				
Thr	Ser	Ala	Trp	Leu	Gly	Phe	Arg	Gln	Val	Ile	Thr	Ala	Val	Ala	Gln	
	290				295						300					
Gly	Ala	Val	Ala	Ala	Thr	Ser	Ala	Tyr	Arg	Tyr	Val	Thr	Glu	Lys	Lys	
305				310					315						320	
Gly	Lys	Lys														

<210> 272
 <211> 332
 <212> PRT
 <213> Sulfolobus solfataricus

<400> 272

Met	Asp	Glu	Tyr	Asp	Ile	Val	Val	Ile	Gly	Gly	Gly	Pro	Val	Gly	Leu
1				5					10					15	
Phe	Gly	Thr	Phe	Tyr	Ala	Gly	Leu	Arg	Asp	Met	Lys	Thr	Leu	Leu	Ile
			20					25				30			
Asp	Ala	Gln	Asp	Glu	Leu	Gly	Gly	Gln	Leu	Val	Ser	Leu	Tyr	Pro	Glu
		35				40						45			
Lys	Ile	Val	Tyr	Asp	Val	Gly	Gly	Leu	Ala	Gly	Ile	Gln	Ala	Tyr	Glu
	50					55					60				
Leu	Ala	Gln	Arg	Leu	Ile	Glu	Gln	Ala	Lys	Met	Phe	Gly	Pro	Asp	Ile
65				70					75						80
Lys	Val	Asn	Glu	Leu	Ala	Asp	Met	Ile	Glu	Lys	Thr	Asn	Asp	Asn	Met
			85						90					95	
Trp	Ile	Val	Lys	Thr	Asp	Lys	Ala	Thr	Tyr	Lys	Thr	Lys	Thr	Ile	Phe
			100					105						110	
Ile	Ala	Ala	Gly	Ile	Gly	Lys	Ile	Val	Pro	Ser	Arg	Leu	Gly	Ala	Lys
		115					120					125			
Gly	Glu	Ile	Glu	Tyr	Glu	Asn	Arg	Gly	Val	Tyr	Tyr	Thr	Val	Arg	Arg
	130					135						140			
Lys	Lys	Asp	Phe	Glu	Gly	Lys	Arg	Val	Leu	Ile	Val	Gly	Gly	Gly	Asp
145				150					155						160
Ser	Ala	Val	Asp	Trp	Ala	Leu	Thr	Leu	Ala	Pro	Val	Ala	Lys	Ser	Val
			165						170					175	
Thr	Leu	Ile	His	Arg	Arg	Asp	Gln	Phe	Arg	Ala	His	Glu	Arg	Ser	Val
			180					185						190	
Lys	Glu	Leu	Phe	Arg	Val	Ala	Asn	Val	Tyr	Val	Trp	His	Glu	Leu	Lys
		195					200					205			
Glu	Val	Lys	Gly	Asp	Gly	Asn	Lys	Val	Thr	Gln	Ala	Ile	Ile	Phe	Asp
	210					215					220				
Asn	Arg	Thr	Lys	Glu	Glu	Lys	Val	Leu	Asp	Val	Asp	Ser	Val	Ile	Ile
225				230					235						240
Ser	Ile	Gly	Tyr	Lys	Gly	Asp	Leu	Gly	Asn	Ile	Pro	Lys	Trp	Gly	Val
			245						250					255	
Thr	Met	Lys	Gly	Arg	Asp	Ile	Val	Val	Asn	Gly	Arg	Met	Glu	Thr	Asn
			260					265					270		
Leu	Pro	Gly	Val	Tyr	Ala	Gly	Gly	Asp	Ile	Val	Gln	Met	Glu	Gly	Ser
		275					280					285			
Pro	Lys	Leu	Ala	Leu	Ile	Ala	Val	Gly	Phe	Ala	His	Ala	Ala	Ile	Ala
	290					295					300				
Ile	Ser	Val	Ala	Lys	Lys	Tyr	Val	Glu	Pro	Asn	Ala	Ser	Leu	Phe	Ala
305				310						315					320
Gly	His	Ser	Ser	Glu	Met	Asp	Lys	Phe	Lys	Pro	Lys				
				325					330						

<210> 273
 <211> 324
 <212> PRT
 <213> Rhizobium loti

Met	Thr	Thr	Lys	His	Ala	Pro	Val	Leu	Ile	Ile	Gly	Ser	Gly	Pro	Ala
1				5					10					15	
Gly	Tyr	Thr	Ala	Ala	Val	Tyr	Ala	Ala	Arg	Ala	Met	Leu	Lys	Pro	Met
			20					25					30		
Leu	Val	Ala	Gly	Leu	Gln	Gln	Gly	Gly	Gln	Leu	Met	Ile	Thr	Thr	Asp
		35					40					45			
Val	Glu	Asn	Tyr	Pro	Gly	Phe	Ala	Asp	Pro	Ile	Gln	Gly	Pro	Trp	Leu
	50					55					60				
Met	Glu	Gln	Met	Met	Lys	Gln	Ala	Glu	His	Val	Gly	Thr	Asp	Ile	Ile
65				70					75						80
Asn	Asp	Ile	Ile	Thr	Glu	Val	Asp	Leu	Asn	Val	Arg	Pro	Phe	Arg	Ala
			85						90				95		
Lys	Gly	Asp	Ser	Gly	Thr	Thr	Tyr	Thr	Ala	Asp	Ala	Leu	Ile	Ile	Ala
			100					105					110		
Thr	Gly	Ala	Gln	Ala	Lys	Trp	Leu	Gly	Ile	Pro	Thr	Glu	Gln	Asp	Phe
		115					120					125			
Met	Gly	Phe	Gly	Val	Ser	Ala	Cys	Ala	Thr	Cys	Asp	Gly	Phe	Phe	Tyr

130	135	140
Arg Gly Lys Asp Val Ala	Val Val Gly Gly Gly	Asn Ser Ala Val Glu
145	150	155
Glu Ala Leu Tyr Leu Ser	Asn Leu Ala Lys Ser	Val Thr Val Ile His
165	170	175
Arg Arg Ser Asp Phe Arg	Ala Glu Arg Ile Leu Arg	Glu Arg Leu Leu
180	185	190
Gln Lys Asp Asn Val Arg	Val Ile Trp Asp Thr Val	Val Asp Glu Ile
195	200	205
Thr Gly Arg Pro Gly Lys	Ala Pro Leu Pro Pro	Ser Val Glu Gly Leu
210	215	220
Lys Leu Lys His Ala Val	Thr Gly Ala Glu Thr	His Leu Lys Val Asp
225	230	235
Gly Val Phe Val Ala Ile	Gly His Ala Pro Ala	Val Glu Leu Phe Val
245	250	255
Gly Lys Leu Lys Gln Lys	Pro Asn Gly Tyr Leu Trp	Thr Ala Pro Asn
260	265	270
Ser Thr Arg Thr Asp Val	Pro Gly Val Phe Ala	Ala Gly Asp Val Thr
275	280	285
Asp Asp Val Tyr Arg Gln	Ala Val Thr Ala Ala	Gly Leu Gly Cys Met
290	295	300
Ala Ala Leu Glu Ala Glu	Lys Tyr Leu Ala Gly	Ile Glu Val His Arg
305	310	315
Glu Ala Ala Glu		

<210> 274
 <211> 343
 <212> PRT
 <213> Rhizobium loti

<400> 274

Met Thr Gly Ile Ile Ser Thr Asp Val Leu Ile Val Gly Ala Gly Pro	15
1	5
Val Gly Leu Phe Ala Val Phe Glu Leu Gly Leu Phe Asp Met Lys Cys	10
20	25
His Leu Ile Asp Ile Leu Asp Lys Pro Gly Gly Gln Cys Ala Glu Leu	30
35	40
Tyr Pro Glu Lys Pro Ile Tyr Asp Ile Pro Gly Trp Pro Ser Ile Ser	45
50	55
Ala Gln Gly Leu Val Asp Lys Leu Leu Glu Gln Ile His Pro Phe Lys	60
65	70
Pro Asp Phe Thr Tyr Asn Arg Met Val Ser Ser Leu Glu Lys Leu Glu	75
85	90
Asp Gly Ser Phe Arg Val Thr Thr Asp Glu Asn Glu Val Phe Glu Ala	95
100	105
Lys Val Val Val Ile Ala Ala Gly Gly Gly Ser Phe Gln Pro Lys Arg	110
115	120
Pro Pro Ile Pro Gly Ile Glu Pro Tyr Glu Gly Lys Ser Val Phe Tyr	125
130	135
Ser Val Arg Arg Met Glu Asp Phe Arg Gly His Asp Leu Val Ile Val	140
145	150
Gly Gly Gly Asp Ser Ala Leu Asp Trp Thr Leu Asn Leu Gln Pro Val	155
165	170
Ala Lys Ser Val Thr Leu Val His Arg Arg Pro Glu Phe Arg Ala Ala	175
180	185
Pro Asp Ser Val Asn Lys Met Tyr Ala Met Gln Glu Met Lys Gln Leu	190
195	200
Glu Phe Arg Val Gly Gln Val Thr Gly Leu Thr Gly Ala Asp Gly Gln	205
210	215
Leu Ser Ser Ala Thr Ile Lys Gly Gly Pro Asp Gly Asp Ile Glu Val	220
225	230
Pro Cys Thr Arg Met Leu Pro Phe Phe Gly Leu Thr Met Lys Leu Gly	235
245	250
Pro Ile Ala Glu Trp Gly Leu Asn Leu His Glu Asn Leu Ile Pro Val	255
260	265
	270

Asp	Thr	Glu	Lys	Phe	Gln	Thr	Ser	Val	Pro	Gly	Ile	Phe	Ala	Val	Gly
		275					280					285			
Asp	Ile	Asn	Ser	Tyr	Pro	Gly	Lys	Leu	Lys	Leu	Ile	Leu	Ser	Gly	Phe
	290					295					300				
His	Glu	Val	Ala	Leu	Met	Ala	Gln	Ala	Ala	Lys	Arg	Ile	Val	Ser	Pro
305					310					315					320
Gly	Glu	Arg	Ile	Val	Phe	Gln	Tyr	Thr	Thr	Ser	Ser	Thr	Ser	Leu	Gln
				325					330					335	
Lys	Lys	Leu	Gly	Val	Val	Gly									
			340												

<210> 275
 <211> 15
 <212> PRT
 <213> *Saccharomyces cerevisiae*

<220>
 <221> VARIANT
 <222> 9, 11
 <223> Xaa = Any Amino Acid

<400>	275															
Val	His	Asn	Ile	Val	Thr	Ile	Ile	Xaa	Ser	Xaa	Pro	Ala	Ala	His		
1				5					10					15		

<210> 276
 <211> 104
 <212> PRT
 <213> *Staphylococcus aureus*

<400>	276															
Met	Ala	Ile	Val	Lys	Val	Thr	Asp	Ala	Asp	Phe	Asp	Ser	Lys	Val	Glu	
1				5					10					15		
Ser	Gly	Val	Gln	Leu	Val	Asp	Phe	Trp	Ala	Thr	Trp	Cys	Gly	Pro	Cys	
			20					25					30			
Lys	Met	Ile	Ala	Pro	Val	Leu	Glu	Glu	Leu	Ala	Ala	Asp	Tyr	Glu	Gly	
		35					40					45				
Lys	Ala	Asp	Ile	Leu	Lys	Leu	Asp	Val	Asp	Glu	Asn	Pro	Ser	Thr	Ala	
	50					55					60					
Ala	Lys	Tyr	Glu	Val	Met	Ser	Ile	Pro	Thr	Leu	Ile	Val	Phe	Lys	Asp	
65					70					75					80	
Gly	Gln	Pro	Val	Asp	Lys	Val	Val	Gly	Phe	Gln	Pro	Lys	Glu	Asn	Leu	
				85					90					95		
Ala	Glu	Val	Leu	Asp	Lys	His	Leu									
			100													

<210> 277
 <211> 92
 <212> PRT
 <213> *Staphylococcus xylosus*

<400>	277															
Met	Ala	Glu	Gln	Val	Asp	Phe	Asp	Ile	Ala	Ile	Ile	Gly	Ala	Gly	Pro	
1				5					10					15		
Ala	Gly	Met	Thr	Ala	Ala	Val	Tyr	Ala	Ser	Arg	Ala	Asn	Leu	Ser	Thr	
			20					25					30			
Val	Met	Ile	Glu	Arg	Gly	Met	Pro	Gly	Gly	Gln	Met	Ala	Asn	Thr	Glu	
		35					40					45				
Glu	Val	Glu	Asn	Phe	Pro	Gly	Phe	Glu	Met	Val	Thr	Gly	Pro	Asp	Leu	
	50					55					60					
Ser	Thr	Lys	Met	Phe	Glu	His	Ala	Lys	Lys	Phe	Gly	Ala	Lys	Tyr	Gln	
65					70					75					80	
Tyr	Gly	Asp	Ile	Lys	Ser	Ile	Glu	Asp	Lys	Gly	Ser					
				85					90							

<210> 278
 <211> 319
 <212> PRT
 <213> Thermoplasma acidophilum

<400> 278
 Met Glu Phe Asn Leu His Ala Val Ser Ser Glu Glu Lys Glu Arg Asp
 1 5 10 15
 Phe Asp Val Val Ile Val Gly Ala Gly Ala Ala Gly Phe Ser Ala Ala
 20 25 30
 Val Tyr Ala Ala Arg Ser Gly Phe Ser Val Ala Ile Leu Asp Lys Ala
 35 40 45
 Val Ala Gly Gly Leu Thr Ala Glu Ala Pro Leu Val Glu Asn Tyr Leu
 50 55 60
 Gly Phe Lys Ser Ile Val Gly Ser Glu Leu Ala Lys Leu Phe Ala Asp
 65 70 75 80
 His Ala Ala Asn Tyr Ala Lys Ile Arg Glu Gly Val Glu Val Arg Ser
 85 90 95
 Ile Lys Lys Thr Gln Gly Gly Phe Asp Ile Glu Thr Asn Asp Asp Thr
 100 105 110
 Tyr His Ala Lys Tyr Val Ile Ile Thr Thr Gly Thr Thr His Lys His
 115 120 125
 Leu Gly Val Lys Gly Glu Ser Glu Tyr Phe Gly Lys Gly Thr Ser Tyr
 130 135 140
 Cys Ser Thr Cys Asp Gly Tyr Leu Phe Lys Gly Lys Arg Val Val Thr
 145 150 155 160
 Ile Gly Gly Gly Asn Ser Gly Ala Ile Ala Ala Ile Ser Met Ser Glu
 165 170 175
 Tyr Val Lys Asn Val Thr Ile Ile Glu Tyr Met Pro Lys Tyr Met Cys
 180 185 190
 Glu Asn Ala Tyr Val Gln Glu Ile Lys Lys Arg Asn Ile Pro Tyr Ile
 195 200 205
 Met Asn Ala Gln Val Thr Glu Ile Val Gly Asp Gly Lys Lys Val Thr
 210 215 220
 Gly Val Lys Tyr Lys Asp Arg Thr Thr Gly Glu Glu Lys Leu Ile Glu
 225 230 235 240
 Thr Asp Gly Val Phe Ile Tyr Val Gly Leu Ile Pro Gln Thr Ser Phe
 245 250 255
 Leu Lys Asp Ser Gly Val Lys Leu Asp Glu Arg Gly Tyr Ile Val Val
 260 265 270
 Asp Ser Arg Gln Arg Thr Ser Val Pro Gly Val Tyr Ala Ala Gly Asp
 275 280 285
 Val Thr Ser Gly Asn Phe Ala Gln Ile Ala Ser Ala Val Gly Asp Gly
 290 295 300
 Cys Lys Ala Ala Leu Ser Leu Tyr Ser Asp Ser Ile Ser Lys Lys
 305 310 315

<210> 279
 <211> 317
 <212> PRT
 <213> Thermotoga maritima

<400> 279
 Met Val Phe Phe Asp Thr Gly Ser Leu Lys Lys Lys Glu Ile Lys Asp
 1 5 10 15
 Lys Tyr Asp Ile Val Val Val Gly Gly Gly Pro Ala Gly Leu Thr Ser
 20 25 30
 Ala Ile Tyr Ala Arg Arg Ala Gly Leu Ser Val Leu Val Val Glu Lys
 35 40 45
 Ala Ile Glu Gly Gly Tyr Val Asn Leu Thr His Leu Val Glu Asn Tyr
 50 55 60
 Pro Gly Phe Pro Ala Ile Ser Gly Glu Glu Leu Ala Ser Lys Phe Lys
 65 70 75 80
 Glu His Ala Glu Lys Phe Gly Ala Asp Ile Tyr Asn Ala Glu Val Val
 85 90 95

Lys	Leu	Glu	Val	Gln	Gly	Asp	Lys	Lys	Val	Val	Glu	Leu	Asp	Asp	Gly
			100					105					110		
Lys	Arg	Ile	Glu	Ala	Pro	Val	Val	Ile	Val	Ala	Thr	Gly	Ala	Asn	Pro
		115					120					125			
Lys	Lys	Leu	Asn	Val	Pro	Gly	Glu	Lys	Glu	Phe	Phe	Gly	Lys	Gly	Val
	130					135					140				
Ser	Tyr	Cys	Ala	Thr	Cys	Asp	Gly	Tyr	Leu	Phe	Ala	Gly	Lys	Asp	Val
145					150					155					160
Ile	Val	Val	Gly	Gly	Gly	Asp	Ser	Ala	Cys	Asp	Glu	Ser	Ile	Phe	Leu
			165						170					175	
Ser	Asn	Ile	Val	Asn	Lys	Ile	Thr	Met	Ile	Gln	Leu	Leu	Glu	Thr	Leu
		180						185					190		
Thr	Ala	Ala	Lys	Val	Leu	Gln	Glu	Arg	Val	Leu	Asn	Asn	Pro	Lys	Ile
		195					200					205			
Glu	Val	Ile	Tyr	Asn	Ser	Thr	Val	Arg	Glu	Ile	Arg	Gly	Lys	Asp	Lys
	210					215					220				
Val	Glu	Glu	Val	Val	Ile	Glu	Asn	Val	Lys	Thr	Gly	Glu	Thr	Lys	Val
225					230					235					240
Leu	Lys	Ala	Asp	Gly	Val	Phe	Ile	Phe	Ile	Gly	Leu	Asp	Pro	Asn	Ser
			245					250						255	
Lys	Leu	Leu	Glu	Gly	Leu	Val	Glu	Leu	Asp	Pro	Tyr	Gly	Tyr	Val	Ile
		260					265					270			
Thr	Asp	Glu	Asn	Met	Glu	Thr	Ser	Val	Lys	Gly	Ile	Tyr	Ala	Val	Gly
		275					280					285			
Asp	Val	Arg	Lys	Lys	Asn	Leu	Arg	Gln	Ile	Val	Thr	Ala	Val	Ala	Asp
	290					295					300				
Gly	Ala	Ile	Ala	Val	Glu	His	Ala	Ala	Lys	His	Tyr	Phe			
305					310					315					

<210> 280

<211> 326

<212> PRT

<213> Thermoplasma volcanium

<400> 280

Met	Asn	Leu	Tyr	Arg	Gly	Met	Glu	Phe	Asn	Leu	Arg	Ser	Val	Ser	Thr
1				5					10					15	
Glu	Ala	Lys	Glu	Arg	Asp	Phe	Asp	Val	Ile	Ile	Ile	Gly	Ala	Gly	Ala
			20					25					30		
Ala	Gly	Phe	Ser	Ala	Ala	Val	Tyr	Ala	Ser	Arg	Ser	Gly	Leu	Ser	Ala
		35					40					45			
Val	Ile	Leu	Asp	Lys	Asn	Val	Ala	Gly	Gly	Leu	Thr	Ala	Glu	Ala	Pro
	50					55					60				
Leu	Val	Glu	Asn	Tyr	Leu	Gly	Phe	Lys	Ser	Ile	Val	Gly	Ser	Asp	Leu
65					70					75					80
Ala	Lys	Asn	Phe	Ala	Glu	His	Ala	Ser	Glu	Tyr	Ala	Ser	Ile	Arg	Glu
			85						90					95	
Gly	Val	Glu	Val	Lys	Ser	Val	Lys	Lys	Gly	Asp	Gly	Gly	Phe	Ile	Val
			100					105					110		
Asp	Thr	Ser	Asp	Gly	Glu	Tyr	His	Ser	Lys	Tyr	Ile	Ile	Ile	Thr	Thr
		115					120					125			
Gly	Thr	Thr	His	Lys	His	Leu	Gly	Val	Lys	Gly	Glu	Ala	Glu	Tyr	Phe
	130					135					140				
Gly	Lys	Gly	Val	Ser	Tyr	Cys	Ser	Thr	Cys	Asp	Gly	Tyr	Leu	Phe	Lys
145					150					155					160
Asn	Lys	Asn	Val	Val	Thr	Ile	Gly	Gly	Gly	Asn	Ser	Gly	Ala	Ile	Ala
			165					170						175	
Ala	Ile	Ser	Met	Ser	Glu	Tyr	Val	Lys	Asn	Ala	Thr	Ile	Val	Glu	Tyr
		180						185					190		
Met	Pro	Arg	Tyr	Met	Cys	Glu	Asn	Ala	Tyr	Ile	Glu	Glu	Ile	Lys	Lys
		195					200					205			
Arg	Lys	Ile	Pro	Tyr	Ile	Met	Asn	Ala	Gln	Val	Thr	Glu	Ile	Val	Gly
	210					215						220			
Asp	Gly	Lys	Lys	Val	Thr	Gly	Val	Lys	Tyr	Lys	Asp	Arg	Ser	Ser	Gly
225					230					235					240
Glu	Glu	Lys	Thr	Leu	Pro	Ala	Asp	Gly	Val	Phe	Val	Tyr	Val	Gly	Leu

Ile	Pro	Gln	Thr	245	Ser	Phe	Leu	Lys	Asp	250	Ser	Gly	Val	Lys	Leu	255	Asp	Glu
			260	Ile	Ile	Val	Asp	Gly	265	Arg	Gln	Arg	Thr	Asn	270	Val	Pro	Gly
Arg	Gly	Tyr	275	Ala	Gly	Asp	Val	Thr	280	Ser	Gly	Ser	Phe	285	Ala	Gln	Ile	Ala
Ile	290	Tyr	Ala	Ala	Gly	Asp	Val	Thr	295	Ser	Gly	Ser	Phe	300	Ala	Gln	Ile	Ala
Ser	Ala	Val	Gly	Asp	Gly	Cys	Lys	Ala	Ala	Leu	Ser	Leu	Tyr	Ser	Asp	320		
305					310					315								
Thr	Ile	Ser	Ser	Lys	Lys													
				325														

<210> 281
 <211> 309
 <212> PRT
 <213> Ureaplasma parvum

<400> 281

Met	Asn	Gln	Glu	Val	Tyr	Asp	Leu	Val	Ile	Ile	Gly	Ala	Gly	Pro	Ala
1				5					10					15	
Gly	Leu	Ala	Ala	Ala	Val	Tyr	Ala	Lys	Arg	Ser	Gly	Leu	Asn	Val	Ile
			20					25					30		
Ile	Val	Glu	Lys	Gln	Phe	Pro	Gly	Gly	Lys	Ile	Ala	Leu	Thr	Ser	Asn
		35					40					45			
Val	Glu	Asn	Tyr	Leu	Gly	Ile	Asn	Ser	Ile	Pro	Gly	Pro	Glu	Leu	Ala
	50				55						60				
Tyr	Lys	Met	Tyr	Glu	Gln	Val	Leu	Asn	Leu	Asn	Val	Ser	Ile	Ile	Tyr
65				70					75						80
Glu	Ala	Ala	Asp	Glu	Ile	Ser	Leu	Lys	Glu	Lys	Tyr	Lys	Lys	Ile	Lys
			85						90					95	
Leu	Thr	Thr	Gln	Thr	Leu	Ile	Thr	Lys	Thr	Val	Ile	Ile	Ala	Thr	Gly
			100					105					110		
Thr	Glu	Asn	Arg	Arg	Leu	Asn	Ile	Leu	Gly	Glu	Leu	Glu	Phe	Glu	Asn
		115					120					125			
Lys	Gly	Ile	Ser	Tyr	Cys	Ala	Ile	Cys	Asp	Gly	Pro	Leu	Tyr	Lys	Asn
	130					135					140				
Lys	Ala	Val	Ser	Val	Ile	Gly	Ser	Gly	Asn	Ser	Ala	Val	Glu	Glu	Ala
145					150				155						160
Ile	Tyr	Leu	Ala	Thr	Ile	Ala	Lys	Glu	Val	His	Leu	Ile	Ala	Asn	Lys
			165					170						175	
Pro	Gln	Phe	Lys	Ala	Glu	Gln	Gln	Leu	Val	Gln	Ile	Ala	Asn	Asn	Thr
			180					185					190		
Pro	Asn	Ile	Lys	Ile	Tyr	Tyr	Asn	Lys	Gln	Thr	Phe	Glu	Phe	Phe	Gly
		195					200					205			
His	Gln	Phe	Leu	Glu	Gly	Leu	Lys	Phe	Arg	Asp	Leu	Ile	Thr	Asn	Glu
	210				215						220				
Val	Thr	Thr	Leu	Asn	Ile	Glu	Ala	Asn	Phe	Thr	Phe	Ile	Gly	Leu	Leu
225					230					235					240
Pro	Ser	Arg	Ile	Asn	Thr	Asn	Asn	Leu	Cys	Ile	Phe	Asn	Glu	Val	Asn
			245					250						255	
Gly	Phe	Ile	Thr	Thr	Asp	Lys	Asn	Met	Gln	Thr	Ser	Val	Cys	Gly	Ile
			260					265					270		
Phe	Ala	Ala	Gly	Asp	Ile	Val	Asp	Lys	Asn	Val	Arg	Gln	Ile	Ala	Thr
		275					280					285			
Ala	Thr	Asn	Asp	Gly	Val	Ile	Ala	Ala	Leu	Tyr	Ala	Lys	Glu	Tyr	Ile
	290					295					300				
Thr	Arg	Asn	Asn	Trp											
305															

<210> 282
 <211> 318
 <212> PRT
 <213> Vibrio cholerae

<400> 282

Met	Ser	Asn	Val	Lys	His	Ser	Lys	Leu	Leu	Ile	Leu	Gly	Ser	Gly	Pro
1				5				10						15	
Ala	Gly	Tyr	Thr	Ala	Ala	Val	Tyr	Ala	Ala	Arg	Ala	Asn	Leu	Lys	Pro
			20					25					30		
Val	Leu	Val	Thr	Gly	Met	Gln	Gln	Gly	Gly	Gln	Leu	Thr	Thr	Thr	Thr
		35					40					45			
Glu	Val	Glu	Asn	Trp	Pro	Gly	Asp	Ala	Glu	Gly	Leu	Thr	Gly	Pro	Ala
	50					55					60				
Leu	Met	Glu	Arg	Met	Lys	Glu	His	Ala	Glu	Arg	Phe	Asp	Thr	Glu	Ile
65					70					75					80
Val	Phe	Asp	His	Ile	Asn	Ser	Val	Asp	Leu	Ser	Ser	Arg	Pro	Phe	Arg
			85					90						95	
Leu	Thr	Gly	Asp	Ser	Gln	Glu	Tyr	Thr	Cys	Asp	Ala	Leu	Ile	Ile	Ser
			100					105					110		
Thr	Gly	Ala	Ser	Ala	Lys	Tyr	Leu	Gly	Leu	Glu	Ser	Glu	Glu	Ala	Phe
		115					120					125			
Lys	Gly	Arg	Gly	Val	Ser	Ala	Cys	Ala	Thr	Cys	Asp	Gly	Phe	Phe	Tyr
	130					135					140				
Arg	Asn	Gln	Lys	Val	Ala	Val	Val	Gly	Gly	Gly	Asn	Thr	Ala	Val	Glu
145					150					155					160
Glu	Ala	Leu	Tyr	Leu	Ser	Asn	Ile	Ala	Ser	Glu	Val	His	Leu	Val	His
				165				170						175	
Arg	Arg	Asp	Ser	Phe	Arg	Ser	Glu	Lys	Ile	Leu	Ile	Asp	Arg	Leu	Met
			180					185					190		
Asp	Lys	Val	Ala	Asn	Gly	Asn	Ile	Val	Leu	His	Thr	His	Arg	Thr	Leu
		195					200					205			
Asp	Glu	Val	Leu	Gly	Asp	Glu	Met	Gly	Val	Thr	Gly	Val	Arg	Leu	Lys
	210					215					220				
Asp	Thr	Gln	Ser	Asp	Met	Thr	Glu	Asn	Leu	Asp	Val	Met	Gly	Val	Phe
225					230					235					240
Ile	Ala	Ile	Gly	His	Gln	Pro	Asn	Ser	Gln	Ile	Phe	Glu	Gly	Gln	Leu
				245					250					255	
Glu	Met	Lys	Asn	Gly	Tyr	Ile	Val	Val	Lys	Ser	Gly	Leu	Glu	Gly	Asn
			260					265					270		
Ala	Thr	Gln	Thr	Ser	Ile	Glu	Gly	Val	Phe	Ala	Ala	Gly	Asp	Val	Met
		275					280					285			
Asp	His	Asn	Tyr	Arg	Gln	Ala	Ile	Thr	Ser	Ala	Gly	Thr	Gly	Cys	Met
	290					295					300				
Ala	Ala	Leu	Asp	Ala	Glu	Arg	Tyr	Leu	Asp	Ser	Gln	Gly	Lys		
305					310					315					

<210> 283
 <211> 321
 <212> PRT
 <213> Xylella fastidiosa

<400>	283														
Met	Ser	Asp	Tyr	Pro	Ala	Ser	Ala	Lys	His	Ser	Arg	Leu	Leu	Ile	Leu
1				5				10						15	
Gly	Ser	Gly	Pro	Ala	Gly	Trp	Thr	Ala	Ala	Val	Tyr	Ala	Ala	Arg	Ala
			20					25					30		
Asn	Leu	Gln	Pro	Val	Leu	Ile	Thr	Gly	Leu	Gln	Gln	Gly	Gly	Gln	Leu
		35					40					45			
Met	Thr	Thr	Thr	Glu	Val	Asp	Asn	Trp	Pro	Gly	Asp	Ala	His	Gly	Leu
	50					55					60				
Met	Gly	Pro	Asp	Leu	Met	Glu	Arg	Met	Gln	Ala	His	Ala	Glu	Arg	Phe
65					70					75					80
Asp	Thr	Lys	Val	Ile	Phe	Asp	Gln	Ile	Tyr	Lys	Ala	Asp	Leu	Ser	Thr
			85					90						95	
Arg	Pro	Phe	Thr	Leu	Phe	Gly	Asp	Ser	Gly	Leu	Tyr	Thr	Cys	Asp	Gly
			100					105					110		
Leu	Ile	Ile	Ala	Thr	Gly	Ala	Asn	Ala	Lys	Tyr	Leu	Gly	Ile	Pro	Ser
		115					120					125			
Glu	Glu	Ala	Phe	Lys	Gly	Arg	Gly	Val	Ser	Ala	Cys	Ala	Thr	Cys	Asp
	130					135					140				
Gly	Phe	Phe	Tyr	Arg	Asp	Gln	Asp	Val	Ala	Val	Ile	Gly	Gly	Gly	Asn

145	Thr	Ala	Val	Glu	Glu	150	Ala	Leu	Tyr	Leu	Ser	155	Asn	Ile	Ala	Arg	Lys	160	Val
						165	Arg	Asp	Lys	Leu	Arg	170	Ala	Glu	Lys	Ile	Met	175	Gln
	Tyr	Leu	Ile	His	Arg	180						185						190	
	Asn	Lys	Leu	Phe	Ser	195	Lys	Ala	Ala	Thr	Gly	200	Lys	Ile	Glu	Leu	Ile	205	Trp
	Asn	Asn	Ala	Val	Glu	210	Glu	Val	Leu	Gly	Asn	215	Asp	Ala	Ser	Val	Thr	220	Gly
	Val	Arg	Ile	Arg	Ser	225	Thr	Gln	Asp	Ser	Ser	230	Thr	Arg	Asp	Ile	Asp	235	Val
	Gln	Gly	Leu	Phe	Val	245	Ala	Ile	Gly	His	His	250	Pro	Asn	Thr	Asp	Leu	255	Phe
	Ala	Gly	Gln	Leu	Ala	260	Met	Asn	Asn	Gly	Tyr	265	Leu	Gln	Ile	His	Ser	270	Gly
	Thr	Ala	Gly	Asn	Val	275	Thr	Gln	Thr	Ser	Val	280	Glu	Gly	Val	Phe	Ala	285	Ala
	Gly	Asp	Val	Ala	Asp	290	Gln	His	Tyr	Arg	Gln	300	Ala	Ile	Thr	Ser	Ala	310	Gly
	Phe	Gly	Cys	Met	Ala	305	Ala	Leu	Asp	Ala	Glu	315	Arg	Phe	Leu	Asp	Lys	320	Gly
	Asn																		

<210> 284
 <211> 318
 <212> PRT
 <213> Zymomonas mobilis

<400> 284

Met	Ser	Ala	Asp	Pro	Ile	Ser	Thr	Arg	Val	Phe	Ile	Leu	Gly	Ser	Gly
1				5					10					15	
Pro	Ala	Gly	Leu	Thr	Ala	Ala	Ile	Tyr	Ala	Ala	Arg	Ala	Gly	Leu	Asn
			20					25					30		
Pro	Ile	Val	Ala	Gln	Gly	Leu	Gln	Pro	Gly	Gly	Gln	Leu	Thr	Ile	Thr
		35				40						45			
Thr	Glu	Val	Glu	Asn	Phe	Pro	Gly	Phe	Arg	Glu	Pro	Ile	Gln	Gly	Pro
	50			55						60					
Trp	Leu	Met	Glu	Glu	Met	Gln	Ala	Gln	Ala	Glu	Asn	Val	Gly	Ala	Lys
65				70					75					80	
Leu	Val	Trp	Asp	Ile	Ile	Thr	Ser	Val	Asp	Phe	Ser	Gln	Arg	Pro	Tyr
			85					90					95		
Arg	Leu	Met	Gly	Asp	Gly	Gly	Gln	Val	Tyr	Leu	Ala	Asp	Ser	Leu	Ile
			100					105					110		
Ile	Ser	Thr	Gly	Ala	Gln	Ala	Arg	Trp	Leu	Gly	Leu	Glu	Ser	Glu	Thr
		115					120					125			
Ala	Leu	Arg	Gly	Lys	Gly	Ile	Ser	Ala	Cys	Ala	Thr	Cys	Asp	Gly	Phe
	130				135					140					
Phe	Phe	Arg	Gly	Lys	Lys	Val	Val	Val	Ile	Gly	Gly	Gly	Asn	Thr	Ala
145				150					155						160
Val	Glu	Glu	Ala	Leu	Tyr	Leu	Thr	Asn	His	Ser	Pro	Glu	Val	Thr	Leu
				165				170						175	
Ile	His	Arg	Arg	Asp	Ser	Leu	Arg	Ala	Glu	Lys	Ile	Met	Gln	Lys	Arg
		180						185					190		
Leu	Leu	Ala	Asn	Pro	Lys	Ile	Lys	Ile	Arg	Trp	Asn	Ser	Glu	Val	Ala
		195					200					205			
Glu	Phe	Ile	Ala	Gly	Glu	Asp	Ser	Ala	Leu	Ser	Ala	Val	Lys	Leu	Lys
	210					215					220				
Asp	Thr	Lys	Thr	Gly	Glu	Glu	Ser	Leu	Leu	Glu	Thr	Glu	Gly	Ala	Phe
225				230						235				240	
Ile	Ala	Ile	Gly	His	Lys	Pro	Ala	Thr	Glu	Leu	Phe	Gln	Gly	His	Leu
			245					250					255		
Lys	Leu	Asp	Asp	Glu	Gly	Tyr	Ile	Glu	Val	Thr	Pro	Gly	Thr	Thr	Gln
		260					265						270		
Thr	Ser	Ile	Lys	Gly	Ile	Phe	Ala	Cys	Gly	Asp	Val	Met	Asp	Lys	His
		275				280					285				

Tyr	Arg	Gln	Ala	Val	Thr	Ala	Ala	Gly	Thr	Gly	Cys	Met	Ala	Ala	Leu
	290					295					300				
Glu	Ala	Glu	Arg	Phe	Leu	Gly	Glu	Ile	Asp	Phe	Lys	Glu	Asp		
305					310					315					

<210> 285
 <211> 122
 <212> PRT
 <213> Bos taurus

<400> 285															
Lys	Leu	Met	His	Gln	Ala	Ala	Leu	Leu	Gly	Gln	Ala	Leu	Thr	Asp	Ser
1				5					10					15	
Arg	Lys	Phe	Gly	Trp	Glu	Tyr	Ser	Gln	Gln	Val	Arg	His	Ser	Trp	Ala
			20					25					30		
Thr	Met	Thr	Glu	Ala	Ile	Gln	Ser	His	Ile	Gly	Ser	Leu	Ser	Trp	Gly
		35					40					45			
His	Arg	Leu	Ala	Leu	Arg	Glu	Lys	Ala	Val	Thr	Tyr	Val	Asn	Ser	Phe
	50					55					60				
Gly	Glu	Phe	Val	Glu	His	His	Lys	Val	Lys	Ala	Thr	Asn	Glu	Lys	Gly
65					70					75					80
Gln	Glu	Val	Leu	Tyr	Thr	Ala	Ala	Lys	Phe	Val	Ile	Ala	Thr	Gly	Glu
				85					90					95	
Arg	Pro	Arg	Tyr	Leu	Gly	Ile	Pro	Gly	Asp	Arg	Glu	Tyr	Cys	Ile	Thr
			100					105					110		
Ser	Asp	Asp	Leu	Phe	Ser	Leu	Pro	Tyr	Cys						
		115					120								

<210> 286
 <211> 511
 <212> PRT
 <213> Bos taurus

<400> 286															
Met	Ala	Ala	Leu	Arg	Gly	Ala	Ala	Ala	Arg	Phe	Arg	Gly	Arg	Ala	Pro
1				5					10					15	
Gly	Gly	Ala	Arg	Gly	Ala	Ala	Gly	Arg	Gln	Cys	Tyr	Asp	Leu	Leu	Val
			20					25					30		
Ile	Gly	Gly	Gly	Ser	Gly	Gly	Leu	Ala	Cys	Ala	Lys	Glu	Ala	Ala	Gln
		35					40					45			
Leu	Gly	Lys	Lys	Val	Ala	Val	Leu	Asp	Tyr	Val	Glu	Pro	Ser	Pro	Gln
	50					55					60				
Gly	Thr	Arg	Trp	Gly	Leu	Gly	Gly	Thr	Cys	Val	Asn	Val	Gly	Cys	Ile
65					70				75						80
Pro	Lys	Lys	Leu	Met	His	Gln	Ala	Ala	Leu	Leu	Gly	Gly	Met	Ile	Arg
				85					90					95	
Asp	Ala	Pro	His	Tyr	Gly	Trp	Gly	Val	Ala	Gln	Ala	Pro	His	Ser	Trp
			100				105						110		
Ala	Thr	Leu	Ala	Asp	Ala	Val	Gln	Asn	His	Val	Lys	Ser	Leu	Asn	Trp
		115					120					125			
Gly	His	Arg	Ile	Gln	Leu	Gln	Asp	Arg	Lys	Val	Lys	Tyr	Phe	Asn	Val
	130					135					140				
Lys	Ala	Ser	Phe	Val	Asp	Thr	His	Thr	Val	Cys	Gly	Val	Ser	Lys	Gly
145					150					155					160
Gly	Glu	Glu	Thr	Leu	Leu	Ser	Ala	Glu	His	Ile	Val	Ile	Ala	Thr	Gly
				165					170					175	
Gly	Arg	Pro	Arg	Tyr	Pro	Thr	His	Ile	Glu	Gly	Ala	Leu	Glu	Tyr	Gly
			180					185					190		
Ile	Thr	Ser	Asp	Asp	Leu	Phe	Trp	Leu	Lys	Glu	Ser	Pro	Gly	Lys	Thr
		195					200					205			
Leu	Val	Val	Gly	Ala	Ser	Tyr	Val	Ala	Leu	Glu	Cys	Ala	Gly	Leu	Leu
	210					215					220				
Thr	Gly	Leu	Gly	Leu	Asp	Thr	Thr	Val	Met	Ile	Arg	Ser	Val	Pro	Leu
225					230					235					240
Arg	Ala	Phe	Asp	Gln	Gln	Met	Ala	Ser	Leu	Val	Thr	Glu	His	Met	Ala

Gly	His	Gly	Thr	245	Arg	Ile	Leu	Arg	Gly	250	Cys	Ala	Pro	Glu	Lys	255	Val	Glu
Lys	Leu	Pro	Gly	260	Gln	Gln	Leu	Arg	Val	265	Thr	Trp	Val	Asp	270	Leu	Thr	Ser
Asp	Arg	Lys	Asp	275	Ala	Gly	Thr	Phe	Asp	280	Thr	Val	Leu	Trp	285	Ala	Ile	Gly
Arg	Val	Pro	Glu	290	Thr	Ala	Ser	Leu	Asn	295	Leu	Glu	Lys	Ala	300	Gly	Val	His
Thr	Asn	Pro	Val	305	Thr	Gly	Lys	Ile	Leu	310	Val	Asp	Ala	Gln	315	Glu	Thr	Thr
Ser	Val	Pro	His	325	Ile	Tyr	Ala	Ile	Gly	330	Asp	Val	Ala	Glu	335	Gly	Arg	Pro
Glu	Leu	Thr	Pro	340	Thr	Ala	Ile	Met	Ala	345	Gly	Arg	Leu	Leu	350	Ala	Gln	Arg
Leu	Ser	Gly	Arg	355	Thr	Ser	Asp	Leu	Met	360	Asp	Tyr	Ser	Ser	365	Val	Pro	Thr
Thr	Val	Phe	Thr	370	Pro	Leu	Glu	Tyr	Gly	375	Cys	Val	Gly	Leu	380	Ser	Glu	Glu
Ala	Ala	Val	Ala	385	Arg	His	Gly	Glu	Glu	390	His	Val	Glu	Val	395	Tyr	His	Ala
Phe	Tyr	Lys	Pro	405	Leu	Glu	Phe	Thr	Val	410	Pro	Gln	Arg	Asp	415	Ala	Ser	Gln
Cys	Tyr	Ile	Lys	420	Met	Val	Cys	Leu	Arg	425	Glu	Pro	Pro	Gln	430	Leu	Val	Leu
Gly	Leu	His	Phe	435	Leu	Gly	Pro	Asn	Ala	440	Gly	Glu	Val	Ile	445	Gln	Gly	Phe
Ala	Leu	Gly	Ile	450	Lys	Cys	Gly	Ala	Ser	455	Tyr	Gln	Gln	Leu	460	Met	Arg	Thr
Val	Gly	Ile	His	465	Pro	Thr	Cys	Ala	Glu	470	Glu	Val	Ala	Lys	475	Leu	Arg	Ile
Ser	Lys	Arg	Ser	485	Gly	Leu	Asp	Pro	Thr	490	Val	Thr	Gly	Cys	495	Cys	Gly	
			500						505						510			

<210> 287
 <211> 525
 <212> PRT
 <213> Caenorhabditis elegans

<220>
 <221> VARIANT
 <222> 524
 <223> Xaa = Any Amino Acid

Met	Tyr	Ile	Lys	Gly	Asn	Ala	Val	Gly	Gly	Leu	Lys	Glu	Leu	Lys	Ala
1				5				10					15		
Leu	Lys	Gln	Asp	Tyr	Leu	Lys	Glu	Trp	Leu	Arg	Asp	His	Thr	Tyr	Asp
			20				25					30			
Leu	Ile	Val	Ile	Gly	Gly	Gly	Ser	Gly	Gly	Leu	Ala	Ala	Ala	Lys	Glu
		35					40					45			
Ala	Ser	Arg	Leu	Gly	Lys	Lys	Val	Ala	Cys	Leu	Asp	Phe	Val	Lys	Pro
	50				55					60					
Ser	Pro	Gln	Gly	Thr	Ser	Trp	Gly	Leu	Gly	Gly	Thr	Cys	Val	Asn	Val
65					70				75						80
Gly	Cys	Ile	Pro	Lys	Lys	Leu	Met	His	Gln	Ala	Ser	Leu	Leu	Gly	His
			85					90						95	
Ser	Ile	His	Asp	Ala	Lys	Lys	Tyr	Gly	Trp	Lys	Leu	Pro	Glu	Gly	Lys
			100					105					110		
Val	Glu	His	Gln	Trp	Asn	His	Leu	Arg	Asp	Ser	Val	Gln	Asp	His	Ile
		115					120					125			
Ala	Ser	Leu	Asn	Trp	Gly	Tyr	Arg	Val	Gln	Leu	Arg	Glu	Lys	Thr	Val
	130				135					140					
Thr	Tyr	Ile	Asn	Ser	Tyr	Gly	Glu	Phe	Thr	Gly	Pro	Phe	Glu	Ile	Ser
145					150					155					160
Ala	Thr	Asn	Lys	Lys	Lys	Lys	Val	Glu	Lys	Leu	Thr	Ala	Asp	Arg	Phe

Leu	Ile	Ser	Thr	165 Gly	Leu	Arg	Pro	Lys	170 Tyr	Pro	Glu	Ile	Pro	175 Gly	Val
Lys	Glu	Tyr	180 Thr	Ile	Thr	Ser	Asp	185 Asp	Leu	Phe	Gln	Leu	Pro	190 Tyr	Ser
Pro	Gly	195 Lys	Thr	Leu	Cys	Val	200 Gly	Ala	Ser	Tyr	Val	Ser	Leu	205 Glu	Cys
Ala	Gly	Phe	Leu	His	Gly	Phe	Gly	Phe	Asp	Val	Thr	Val	Met	Val	Arg
225				230					235						240
Ser	Ile	Leu	Leu	Arg	Gly	Phe	Asp	Gln	Asp	Met	Ala	Glu	Arg	Ile	Arg
				245					250					255	
Lys	His	Met	Ile	Ala	Tyr	Gly	Met	Lys	Phe	Glu	Ala	Gly	Val	Pro	Thr
			260					265					270		
Arg	Ile	Glu	Gln	Ile	Asp	Glu	Lys	Thr	Asp	Glu	Lys	Ala	Gly	Lys	Tyr
		275					280					285			
Arg	Val	Phe	Trp	Pro	Lys	Lys	Asn	Glu	Glu	Thr	Gly	Glu	Met	Gln	Glu
	290					295					300				
Val	Ser	Glu	Glu	Tyr	Asn	Thr	Ile	Leu	Met	Ala	Ile	Gly	Arg	Glu	Ala
305					310					315					320
Val	Thr	Asp	Asp	Val	Gly	Leu	Thr	Thr	Ile	Gly	Val	Glu	Arg	Ala	Lys
				325					330					335	
Ser	Lys	Lys	Val	Leu	Gly	Arg	Arg	Glu	Gln	Ser	Thr	Thr	Ile	Pro	Trp
			340					345					350		
Val	Tyr	Ala	Ile	Gly	Asp	Val	Leu	Glu	Gly	Thr	Pro	Glu	Leu	Thr	Pro
		355					360					365			
Val	Ala	Ile	Gln	Ala	Gly	Arg	Val	Leu	Met	Arg	Arg	Ile	Phe	Asp	Gly
	370					375					380				
Ala	Asn	Glu	Leu	Thr	Glu	Tyr	Asp	Gln	Ile	Pro	Thr	Thr	Val	Phe	Thr
385					390					395					400
Pro	Leu	Glu	Tyr	Gly	Cys	Cys	Gly	Leu	Ser	Glu	Glu	Asp	Ala	Met	Met
				405				410						415	
Lys	Tyr	Gly	Lys	Asp	Asn	Ile	Ile	Ile	Tyr	His	Asn	Val	Phe	Asn	Pro
			420					425					430		
Leu	Glu	Tyr	Thr	Ile	Ser	Glu	Arg	Met	Asp	Lys	Asp	His	Cys	Tyr	Leu
		435					440					445			
Lys	Met	Ile	Cys	Leu	Arg	Asn	Glu	Glu	Glu	Lys	Val	Val	Gly	Phe	His
	450					455					460				
Ile	Leu	Thr	Pro	Asn	Ala	Gly	Glu	Val	Thr	Gln	Gly	Phe	Gly	Ile	Ala
465					470					475					480
Leu	Lys	Leu	Ala	Ala	Lys	Lys	Ala	Asp	Phe	Asp	Arg	Leu	Ile	Gly	Ile
				485				490						495	
His	Pro	Thr	Val	Ala	Glu	Asn	Phe	Thr	Thr	Leu	Thr	Leu	Glu	Lys	Lys
			500					505					510		
Glu	Gly	Asp	Glu	Glu	Leu	Gln	Ala	Ser	Gly	Cys	Xaa	Gly			
		515					520					525			

<210> 288
 <211> 667
 <212> PRT
 <213> Caenorhabditis elegans

<220>
 <221> VARIANT
 <222> 666
 <223> Xaa = Any Amino Acid

<400> 288
 Met Lys Ser Leu Thr Glu Leu Phe Gly Cys Phe Lys Arg Gln Pro Arg
 1 5 10 15
 Gln Gln Glu Ala Ser Ser Pro Ala Asn Pro His Val Ser Asp Thr Leu
 20 25 30
 Ser Met Gly Val Ala Ala Ser Gly Met Pro Pro Pro Lys Arg Pro Ala
 35 40 45
 Pro Ala Glu Ser Pro Thr Leu Pro Gly Glu Thr Leu Val Asp Ala Pro
 50 55 60
 Gly Ile Pro Leu Lys Glu Ala Leu Lys Glu Ala Ala Asn Ser Lys Ile

65	Val	Ile	Phe	Tyr	Asn	70	Ser	Ser	Asp	Glu	Glu	75	Lys	Gln	Leu	Val	Glu	80	Phe
					85							90					95		
	Glu	Thr	Tyr	Leu	Asn		Ser	Leu	Lys	Glu	Pro		Ala	Asp	Ala	Glu	Lys		Pro
				100						105						110			
	Leu	Glu	Ile	Pro	Glu		Ile	Lys	Lys	Leu	Gln		Val	Ser	Arg	Ala	Ser		Gln
			115						120						125				
	Lys	Val	Ile	Gln	Tyr		Leu	Thr	Leu	His	Thr		Ser	Trp	Pro	Leu	Met		Tyr
		130						135						140					
	Ile	Lys	Gly	Asn	Ala		Val	Gly	Gly	Leu	Lys		Glu	Leu	Lys	Ala	Leu		Lys
	145						150						155						160
	Gln	Asp	Tyr	Leu	Lys		Glu	Trp	Leu	Arg	Asp		His	Thr	Tyr	Asp	Leu		Ile
				165							170						175		
	Val	Ile	Gly	Gly	Gly		Ser	Gly	Gly	Leu	Ala		Ala	Ala	Lys	Glu	Ala		Ser
			180							185						190			
	Arg	Leu	Gly	Lys	Lys		Val	Ala	Cys	Leu	Asp		Phe	Val	Lys	Pro	Ser		Pro
		195							200						205				
	Gln	Gly	Thr	Ser	Trp		Gly	Leu	Gly	Gly	Thr		Cys	Val	Asn	Val	Gly		Cys
		210						215						220					
	Ile	Pro	Lys	Lys	Leu		Met	His	Gln	Ala	Ser		Leu	Leu	Gly	His	Ser		Ile
	225						230						235						240
	His	Asp	Ala	Lys	Lys		Tyr	Gly	Trp	Lys	Leu		Pro	Glu	Gly	Lys	Val		Glu
				245							250						255		
	His	Gln	Trp	Asn	His		Leu	Arg	Asp	Ser	Val		Gln	Asp	His	Ile	Ala		Ser
			260							265						270			
	Leu	Asn	Trp	Gly	Tyr		Arg	Val	Gln	Leu	Arg		Glu	Lys	Thr	Val	Thr		Tyr
		275							280						285				
	Ile	Asn	Ser	Tyr	Gly		Glu	Phe	Thr	Gly	Pro		Phe	Glu	Ile	Ser	Ala		Thr
		290						295						300					
	Asn	Lys	Lys	Lys	Lys		Val	Glu	Lys	Leu	Thr		Ala	Asp	Arg	Phe	Leu		Ile
	305						310						315						320
	Ser	Thr	Gly	Leu	Arg		Pro	Lys	Tyr	Pro	Glu		Ile	Pro	Gly	Val	Lys		Glu
				325							330						335		
	Tyr	Thr	Ile	Thr	Ser		Asp	Asp	Leu	Phe	Gln		Leu	Pro	Tyr	Ser	Pro		Gly
			340							345						350			
	Lys	Thr	Leu	Cys	Val		Gly	Ala	Ser	Tyr	Val		Ser	Leu	Glu	Cys	Ala		Gly
		355							360						365				
	Phe	Leu	His	Gly	Phe		Gly	Phe	Asp	Val	Thr		Val	Met	Val	Arg	Ser		Ile
		370						375						380					
	Leu	Leu	Arg	Gly	Phe		Asp	Gln	Asp	Met	Ala		Glu	Arg	Ile	Arg	Lys		His
	385						390						395						400
	Met	Ile	Ala	Tyr	Gly		Met	Lys	Phe	Glu	Ala		Gly	Val	Pro	Thr	Arg		Ile
				405							410						415		
	Glu	Gln	Ile	Asp	Glu		Lys	Thr	Asp	Glu	Lys		Ala	Gly	Lys	Tyr	Arg		Val
			420							425						430			
	Phe	Trp	Pro	Lys	Lys		Asn	Glu	Glu	Thr	Gly		Glu	Met	Gln	Glu	Val		Ser
		435							440						445				
	Glu	Glu	Tyr	Asn	Thr		Ile	Leu	Met	Ala	Ile		Gly	Arg	Glu	Ala	Val		Thr
		450						455						460					
	Asp	Asp	Val	Gly	Leu		Thr	Thr	Ile	Gly	Val		Glu	Arg	Ala	Lys	Ser		Lys
	465						470						475						480
	Lys	Val	Leu	Gly	Arg		Arg	Glu	Gln	Ser	Thr		Thr	Ile	Pro	Trp	Val		Tyr
				485							490						495		
	Ala	Ile	Gly	Asp	Val		Leu	Glu	Gly	Thr	Pro		Glu	Leu	Thr	Pro	Val		Ala
			500							505						510			
	Ile	Gln	Ala	Gly	Arg		Val	Leu	Met	Arg	Arg		Ile	Phe	Asp	Gly	Ala		Asn
		515							520						525				
	Glu	Leu	Thr	Glu	Tyr		Asp	Gln	Ile	Pro	Thr		Thr	Val	Phe	Thr	Pro		Leu
		530						535						540					
	Glu	Tyr	Gly	Cys	Cys		Gly	Leu	Ser	Glu	Glu		Asp	Ala	Met	Met	Lys		Tyr
	545						550						555						560
	Gly	Lys	Asp	Asn	Ile		Ile	Ile	Tyr	His	Asn		Val	Phe	Asn	Pro	Leu		Glu
				565							570						575		
	Tyr	Thr	Ile	Ser	Glu		Arg	Met	Asp	Lys	Asp		His	Cys	Tyr	Leu	Lys		Met
			580							585						590			
	Ile	Cys	Leu	Arg	Asn		Glu	Glu	Glu	Lys	Val		Val	Gly	Phe	His	Ile		Leu
			595						600						605				

Thr	Pro	Asn	Ala	Gly	Glu	Val	Thr	Gln	Gly	Phe	Gly	Ile	Ala	Leu	Lys
	610					615					620				
Leu	Ala	Ala	Lys	Lys	Ala	Asp	Phe	Asp	Arg	Leu	Ile	Gly	Ile	His	Pro
625					630					635					640
Thr	Val	Ala	Glu	Asn	Phe	Thr	Thr	Leu	Thr	Leu	Glu	Lys	Lys	Glu	Gly
				645					650					655	
Asp	Glu	Glu	Leu	Gln	Ala	Ser	Gly	Cys	Xaa	Gly					
			660					665							

<210> 289
 <211> 516
 <212> PRT
 <213> Drosophila melanogaster

<400> 289

Met	Ser	Thr	Ile	Lys	Phe	Leu	Arg	Ser	Ser	Thr	His	Asn	Ala	Leu	Arg
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Ser	Ser	Leu	Gly	Trp	Cys	Arg	Leu	Ala	Ala	Ser	Arg	Pro	Arg	Tyr	Asp
			20					25					30		
Tyr	Asp	Leu	Val	Val	Leu	Gly	Gly	Gly	Ser	Ala	Gly	Leu	Ala	Cys	Ala
		35				40						45			
Lys	Glu	Ala	Ala	Gly	Cys	Gly	Ala	Arg	Val	Leu	Cys	Phe	Asp	Tyr	Val
	50					55					60				
Lys	Pro	Thr	Pro	Val	Gly	Thr	Lys	Trp	Gly	Ile	Gly	Gly	Thr	Cys	Val
65					70					75					80
Asn	Val	Gly	Cys	Ile	Pro	Lys	Lys	Leu	Met	His	Gln	Ala	Ser	Leu	Leu
				85					90					95	
Gly	Glu	Ala	Val	His	Glu	Ala	Val	Ala	Tyr	Gly	Trp	Asn	Val	Asp	Asp
			100					105					110		
Thr	Asn	Ile	Arg	Pro	Asp	Trp	Arg	Lys	Leu	Val	Arg	Ser	Val	Gln	Asn
		115					120					125			
His	Ile	Lys	Ser	Val	Asn	Trp	Val	Thr	Arg	Val	Asp	Leu	Arg	Asp	Lys
	130					135					140				
Lys	Val	Glu	Tyr	Val	Asn	Ser	Met	Ala	Thr	Phe	Arg	Asp	Ser	His	Thr
145					150					155					160
Ile	Glu	Tyr	Val	Ala	Met	Pro	Gly	Ala	Glu	His	Arg	Gln	Val	Thr	Ser
				165					170					175	
Glu	Tyr	Val	Val	Val	Ala	Val	Gly	Gly	Arg	Pro	Arg	Tyr	Pro	Asp	Ile
			180					185					190		
Pro	Gly	Ala	Val	Glu	Leu	Gly	Ile	Thr	Ser	Asp	Asp	Ile	Phe	Ser	Tyr
		195				200						205			
Glu	Arg	Glu	Pro	Gly	Arg	Thr	Leu	Val	Val	Gly	Ala	Gly	Tyr	Val	Gly
	210					215					220				
Leu	Glu	Cys	Ala	Cys	Phe	Leu	Lys	Gly	Leu	Gly	Tyr	Glu	Pro	Thr	Val
225				230						235					240
Met	Val	Arg	Ser	Ile	Val	Leu	Arg	Gly	Phe	Asp	Arg	Gln	Met	Ser	Glu
				245					250					255	
Leu	Leu	Ala	Ala	Met	Met	Thr	Glu	Arg	Gly	Ile	Pro	Phe	Leu	Gly	Thr
			260					265					270		
Thr	Ile	Pro	Lys	Ala	Val	Glu	Arg	Gln	Ala	Asp	Gly	Arg	Leu	Leu	Val
		275					280					285			
Arg	Tyr	Arg	Asn	Thr	Thr	Thr	Gln	Met	Asp	Gly	Ser	Asp	Val	Phe	Asp
	290					295					300				
Thr	Val	Leu	Trp	Ala	Ile	Gly	Arg	Lys	Gly	Leu	Ile	Glu	Asp	Leu	Asn
305					310					315					320
Leu	Asp	Ala	Ala	Gly	Val	Lys	Thr	His	Asp	Asp	Lys	Ile	Val	Val	Asp
				325					330					335	
Ala	Ala	Glu	Ala	Thr	Ser	Val	Pro	His	Ile	Phe	Ala	Val	Gly	Asp	Ile
			340					345					350		
Ile	Tyr	Gly	Arg	Pro	Glu	Leu	Thr	Pro	Val	Ala	Ile	Leu	Ser	Gly	Arg
		355					360					365			
Leu	Leu	Ala	Arg	Arg	Leu	Phe	Ala	Gly	Ser	Thr	Gln	Leu	Met	Asp	Tyr
	370					375					380				
Ala	Asp	Val	Ala	Thr	Thr	Val	Phe	Thr	Pro	Leu	Glu	Tyr	Ser	Cys	Val
385					390					395					400
Gly	Met	Ser	Glu	Glu	Thr	Ala	Ile	Glu	Leu	Arg	Gly	Ala	Asp	Asn	Ile

				405					410					415		
Glu	Val	Phe	His	Gly	Tyr	Tyr	Lys	Pro	Thr	Glu	Phe	Phe	Ile	Pro	Gln	
			420					425					430			
Lys	Ser	Val	Arg	His	Cys	Tyr	Leu	Lys	Ala	Val	Ala	Glu	Val	Ser	Gly	
		435					440					445				
Asp	Gln	Lys	Ile	Leu	Gly	Leu	His	Tyr	Ile	Gly	Pro	Val	Ala	Gly	Glu	
	450				455					460						
Val	Ile	Gln	Gly	Phe	Ala	Ala	Ala	Leu	Lys	Thr	Gly	Leu	Thr	Val	Lys	
465				470						475					480	
Thr	Leu	Leu	Asn	Thr	Val	Gly	Ile	His	Pro	Thr	Thr	Ala	Glu	Glu	Phe	
			485					490					495			
Thr	Arg	Leu	Ser	Ile	Thr	Lys	Arg	Ser	Gly	Arg	Asp	Pro	Thr	Pro	Ala	
		500						505					510			
Ser	Cys	Cys	Ser													
		515														

<210> 290
 <211> 524
 <212> PRT
 <213> Homo sapiens

<220>
 <221> VARIANT
 <222> 523
 <223> Xaa = Any Amino Acid

<400> 290

Met	Ala	Ala	Met	Ala	Val	Ala	Leu	Arg	Gly	Leu	Gly	Gly	Arg	Phe	Arg	
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Trp	Arg	Thr	Gln	Ala	Val	Ala	Gly	Gly	Val	Arg	Gly	Ala	Ala	Arg	Gly	
			20					25					30			
Ala	Ala	Ala	Gly	Gln	Arg	Asp	Tyr	Asp	Leu	Leu	Val	Val	Gly	Gly	Gly	
		35				40						45				
Ser	Gly	Gly	Leu	Ala	Cys	Ala	Lys	Glu	Ala	Ala	Gln	Leu	Gly	Arg	Lys	
	50				55						60					
Val	Ser	Val	Val	Asp	Tyr	Val	Glu	Pro	Ser	Pro	Gln	Gly	Thr	Arg	Trp	
65				70						75					80	
Gly	Leu	Gly	Gly	Thr	Cys	Val	Asn	Val	Gly	Cys	Ile	Pro	Lys	Lys	Leu	
			85					90						95		
Met	His	Gln	Ala	Ala	Leu	Leu	Gly	Gly	Leu	Ile	Gln	Asp	Ala	Pro	Asn	
		100					105					110				
Tyr	Gly	Trp	Glu	Val	Ala	Gln	Pro	Val	Pro	His	Asp	Trp	Arg	Lys	Met	
		115				120						125				
Ala	Glu	Ala	Val	Gln	Asn	His	Val	Lys	Ser	Leu	Asn	Trp	Gly	His	Arg	
	130				135						140					
Val	Gln	Leu	Gln	Asp	Arg	Lys	Val	Lys	Tyr	Phe	Asn	Ile	Lys	Ala	Ser	
145				150					155						160	
Phe	Val	Asp	Glu	His	Thr	Val	Cys	Gly	Val	Ala	Lys	Gly	Gly	Lys	Glu	
			165				170							175		
Ile	Leu	Leu	Ser	Ala	Asp	His	Ile	Ile	Ile	Ala	Thr	Gly	Gly	Arg	Pro	
		180					185						190			
Arg	Tyr	Pro	Thr	His	Ile	Glu	Gly	Ala	Leu	Glu	Tyr	Gly	Ile	Thr	Ser	
		195				200						205				
Asp	Asp	Ile	Phe	Trp	Leu	Lys	Glu	Ser	Pro	Gly	Lys	Thr	Leu	Val	Val	
	210				215						220					
Gly	Ala	Ser	Tyr	Val	Ala	Leu	Glu	Cys	Ala	Gly	Phe	Leu	Thr	Gly	Ile	
225				230					235						240	
Gly	Leu	Asp	Thr	Thr	Ile	Met	Met	Arg	Ser	Ile	Pro	Leu	Arg	Gly	Phe	
			245				250							255		
Asp	Gln	Gln	Met	Ser	Ser	Met	Val	Ile	Glu	His	Met	Ala	Ser	His	Gly	
		260					265					270				
Thr	Arg	Phe	Leu	Arg	Gly	Cys	Ala	Pro	Ser	Arg	Val	Arg	Arg	Leu	Pro	
		275				280						285				
Asp	Gly	Gln	Leu	Gln	Val	Thr	Trp	Glu	Asp	Ser	Thr	Thr	Gly	Lys	Glu	
	290				295						300					
Asp	Thr	Gly	Thr	Phe	Asp	Thr	Val	Leu	Trp	Ala	Ile	Gly	Arg	Val	Pro	

305					310					315					320
Asp	Thr	Arg	Ser	Leu	Asn	Leu	Glu	Lys	Ala	Gly	Val	Asp	Thr	Ser	Pro
				325					330					335	
Asp	Thr	Gln	Lys	Ile	Leu	Val	Asp	Ser	Arg	Glu	Ala	Thr	Ser	Val	Pro
			340					345					350		
His	Ile	Tyr	Ala	Ile	Gly	Asp	Val	Val	Glu	Gly	Arg	Pro	Glu	Leu	Thr
		355				360					365				
Pro	Ile	Ala	Ile	Met	Ala	Gly	Arg	Leu	Leu	Val	Gln	Arg	Leu	Phe	Gly
	370					375					380				
Gly	Ser	Ser	Asp	Leu	Met	Asp	Tyr	Asp	Asn	Val	Pro	Thr	Thr	Val	Phe
385					390					395					400
Thr	Pro	Leu	Glu	Tyr	Gly	Cys	Val	Gly	Leu	Ser	Glu	Glu	Glu	Ala	Val
				405					410					415	
Ala	Arg	His	Gly	Gln	Glu	His	Val	Glu	Val	Tyr	His	Ala	His	Tyr	Lys
			420					425					430		
Pro	Leu	Glu	Phe	Thr	Val	Ala	Gly	Arg	Asp	Ala	Ser	Gln	Cys	Tyr	Val
		435					440					445			
Lys	Met	Val	Cys	Leu	Arg	Glu	Pro	Pro	Gln	Leu	Val	Leu	Gly	Leu	His
	450					455					460				
Phe	Leu	Gly	Pro	Asn	Ala	Gly	Glu	Val	Thr	Gln	Gly	Phe	Ala	Leu	Gly
465					470					475					480
Ile	Lys	Cys	Gly	Ala	Ser	Tyr	Ala	Gln	Val	Met	Arg	Thr	Val	Gly	Ile
				485					490					495	
His	Pro	Thr	Cys	Ser	Glu	Glu	Val	Val	Lys	Leu	Arg	Ile	Ser	Lys	Arg
			500					505					510		
Ser	Gly	Leu	Asp	Pro	Thr	Val	Thr	Gly	Cys	Xaa	Gly				
		515					520								

<210> 291
 <211> 497
 <212> PRT
 <213> Homo sapiens

<400> 291															
Met	Asn	Gly	Pro	Glu	Asp	Leu	Pro	Lys	Ser	Tyr	Asp	Tyr	Asp	Leu	Ile
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Ile	Ile	Gly	Gly	Gly	Ser	Gly	Gly	Leu	Ala	Ala	Ala	Lys	Glu	Ala	Ala
			20					25					30		
Gln	Tyr	Gly	Lys	Lys	Val	Met	Val	Leu	Asp	Phe	Val	Thr	Pro	Thr	Pro
		35					40					45			
Leu	Gly	Thr	Arg	Trp	Gly	Leu	Gly	Gly	Thr	Cys	Val	Asn	Val	Gly	Cys
	50					55					60				
Ile	Pro	Lys	Lys	Leu	Met	His	Gln	Ala	Ala	Leu	Leu	Gly	Gln	Ala	Leu
65					70					75					80
Gln	Asp	Ser	Arg	Asn	Tyr	Gly	Trp	Lys	Val	Glu	Glu	Thr	Val	Lys	His
				85					90					95	
Asp	Trp	Asp	Arg	Met	Ile	Glu	Ala	Val	Gln	Asn	His	Ile	Gly	Ser	Leu
			100					105					110		
Asn	Trp	Gly	Tyr	Arg	Val	Ala	Leu	Arg	Glu	Lys	Lys	Val	Val	Tyr	Glu
		115					120					125			
Asn	Ala	Tyr	Gly	Gln	Phe	Ile	Gly	Pro	His	Arg	Ile	Lys	Ala	Thr	Asn
	130					135					140				
Asn	Lys	Gly	Lys	Glu	Lys	Ile	Tyr	Ser	Ala	Glu	Arg	Phe	Leu	Ile	Ala
145					150					155					160
Thr	Gly	Glu	Arg	Pro	Arg	Tyr	Leu	Gly	Ile	Pro	Gly	Asp	Lys	Glu	Tyr
				165					170					175	
Cys	Ile	Ser	Ser	Asp	Asp	Leu	Phe	Ser	Leu	Pro	Tyr	Cys	Pro	Gly	Lys
			180					185					190		
Thr	Leu	Val	Val	Gly	Ala	Ser	Tyr	Val	Ala	Leu	Glu	Cys	Ala	Gly	Phe
		195					200					205			
Leu	Ala	Gly	Ile	Gly	Leu	Asn	Val	Thr	Val	Met	Val	Arg	Ser	Ile	Leu
	210					215					220				
Leu	Arg	Gly	Phe	Asp	Gln	Asp	Met	Ala	Asn	Lys	Ile	Gly	Glu	His	Met
225					230					235					240
Glu	Glu	His	Gly	Ile	Lys	Phe	Ile	Arg	Gln	Phe	Val	Pro	Ile	Lys	Val
				245					250					255	

Glu	Gln	Ile	Glu	Ala	Gly	Thr	Pro	Gly	Arg	Leu	Arg	Val	Val	Ala	Gln
			260					265					270		
Ser	Thr	Asn	Ser	Glu	Glu	Ile	Ile	Glu	Gly	Glu	Tyr	Asn	Thr	Val	Met
		275					280					285			
Leu	Ala	Ile	Gly	Arg	Asp	Ala	Cys	Thr	Arg	Lys	Ile	Gly	Leu	Glu	Thr
	290				295						300				
Val	Gly	Val	Lys	Ile	Asn	Glu	Lys	Thr	Gly	Lys	Ile	Pro	Val	Thr	Asp
305					310					315					320
Glu	Glu	Gln	Thr	Asn	Val	Pro	Tyr	Ile	Tyr	Ala	Ile	Gly	Asp	Ile	Leu
				325					330					335	
Glu	Asp	Lys	Val	Glu	Leu	Thr	Pro	Val	Ala	Ile	Gln	Ala	Gly	Arg	Leu
			340					345					350		
Leu	Ala	Gln	Arg	Leu	Tyr	Ala	Gly	Ser	Thr	Val	Lys	Cys	Asp	Tyr	Glu
		355					360					365			
Asn	Val	Pro	Thr	Thr	Val	Phe	Thr	Pro	Leu	Glu	Tyr	Gly	Ala	Cys	Gly
	370					375					380				
Leu	Ser	Glu	Glu	Lys	Ala	Val	Glu	Lys	Phe	Gly	Glu	Glu	Asn	Ile	Glu
385					390					395					400
Val	Tyr	His	Ser	Tyr	Phe	Trp	Pro	Leu	Glu	Trp	Thr	Ile	Pro	Ser	Arg
				405					410					415	
Asp	Asn	Asn	Lys	Cys	Tyr	Ala	Lys	Ile	Ile	Cys	Asn	Thr	Lys	Asp	Asn
			420					425					430		
Glu	Arg	Val	Val	Gly	Phe	His	Val	Leu	Gly	Pro	Asn	Ala	Gly	Glu	Val
		435					440					445			
Thr	Gln	Gly	Phe	Ala	Ala	Ala	Leu	Lys	Cys	Gly	Leu	Thr	Lys	Lys	Gln
	450					455					460				
Leu	Asp	Ser	Thr	Ile	Gly	Ile	His	Pro	Val	Cys	Ala	Glu	Val	Phe	Thr
465					470					475					480
Thr	Leu	Ser	Val	Thr	Lys	Arg	Ser	Gly	Ala	Arg	Ile	Leu	Gln	Ala	Gly
				485					490					495	

Cys

<210> 292
 <211> 497
 <212> PRT
 <213> Homo sapien

<400> 292

Met	Asn	Gly	Pro	Glu	Asp	Leu	Pro	Lys	Ser	Tyr	Asp	Tyr	Asp	Leu	Ile
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Ile	Ile	Gly	Gly	Gly	Ser	Gly	Gly	Leu	Ala	Ala	Ala	Lys	Glu	Pro	Ala
		20						25					30		
Gln	Tyr	Gly	Lys	Lys	Val	Met	Val	Leu	Asp	Phe	Gly	Thr	Pro	Thr	Pro
		35					40					45			
Leu	Gly	Thr	Arg	Trp	Gly	Leu	Gly	Gly	Thr	Cys	Val	Asn	Val	Gly	Cys
	50					55					60				
Ile	Pro	Lys	Lys	Leu	Met	His	Gln	Ala	Ala	Leu	Leu	Gly	Gln	Ala	Leu
65					70					75					80
Gln	Asp	Ser	Arg	Asn	Tyr	Gly	Trp	Lys	Val	Glu	Glu	Thr	Val	Lys	His
				85					90					95	
Asp	Trp	Asp	Arg	Met	Ile	Glu	Ala	Val	Gln	Asn	His	Ile	Gly	Ser	Leu
			100					105					110		
Asn	Trp	Gly	Tyr	Arg	Val	Ala	Leu	Arg	Glu	Lys	Lys	Val	Val	Tyr	Glu
		115					120					125			
Asn	Ala	Tyr	Gly	Gln	Phe	Ile	Gly	Pro	His	Arg	Ile	Lys	Ala	Thr	Asn
	130					135					140				
Asn	Lys	Gly	Lys	Glu	Lys	Ile	Tyr	Ser	Ala	Glu	Arg	Phe	Leu	Ile	Ala
145					150					155					160
Thr	Gly	Glu	Arg	Pro	Arg	Tyr	Leu	Gly	Ile	Pro	Gly	Asp	Lys	Glu	Tyr
				165					170					175	
Cys	Ile	Ser	Ser	Asp	Asp	Leu	Phe	Ser	Leu	Pro	Tyr	Cys	Pro	Gly	Lys
			180					185					190		
Thr	Leu	Val	Val	Gly	Ala	Ser	Tyr	Val	Ala	Leu	Glu	Cys	Ala	Gly	Phe
		195					200					205			
Leu	Ala	Gly	Ile	Gly	Leu	Asp	Val	Thr	Val	Met	Val	Arg	Ser	Ile	Leu

210	215	220
Leu Arg Gly Phe Asp Gln	Asp Met Ala Asn Lys	Ile Gly Glu His Met
225	230	235
Glu Glu His Gly Ile Lys	Phe Ile Arg Gln Phe	Val Pro Ile Lys Val
245	250	255
Glu Gln Ile Glu Ala Gly	Thr Pro Gly Arg Leu	Arg Val Val Ala Gln
260	265	270
Ser Thr Asn Ser Glu Glu	Ile Ile Glu Gly Glu	Tyr Asn Thr Val Met
275	280	285
Leu Ala Ile Gly Arg Asp	Ala Cys Thr Arg Lys	Ile Gly Leu Glu Thr
290	295	300
Val Gly Val Lys Ile Asn	Glu Lys Thr Gly Lys	Ile Pro Val Thr Asp
305	310	315
Glu Glu Gln Thr Asn Val	Pro Tyr Ile Tyr Ala	Ile Gly Asp Ile Leu
325	330	335
Glu Asp Lys Val Glu Leu	Thr Pro Val Ala Ile	Gln Ala Gly Arg Leu
340	345	350
Leu Ala Gln Arg Leu Tyr	Ala Gly Ser Thr Val	Lys Cys Asp Tyr Glu
355	360	365
Asn Val Pro Thr Thr Val	Phe Thr Pro Leu Glu	Tyr Gly Ala Cys Gly
370	375	380
Leu Ser Glu Glu Lys Ala	Val Glu Lys Phe Gly	Glu Glu Asn Ile Glu
385	390	395
Val Tyr His Ser Tyr Phe	Trp Pro Leu Glu Trp	Thr Ile Pro Ser Arg
405	410	415
Asp Asn Asn Lys Cys Tyr	Ala Lys Ile Ile Cys	Asn Thr Lys Asp Asn
420	425	430
Glu Arg Val Val Gly Phe	His Val Leu Gly Pro	Asn Ala Gly Glu Val
435	440	445
Thr Gln Gly Phe Ala Ala	Ala Leu Lys Cys Gly	Leu Thr Lys Lys Gln
450	455	460
Leu Asp Ser Thr Ile Gly	Ile His Pro Val Cys	Ala Glu Val Phe Thr
465	470	475
Thr Leu Ser Val Thr Lys	Arg Ser Gly Ala Ser	Ile Leu Gln Ala Gly
485	490	495

Cys

<210> 293
 <211> 521
 <212> PRT
 <213> Homo sapiens

<220>
 <221> VARIANT
 <222> 520
 <223> Xaa = Any Amino Acid

<400> 293

Met	Ala	Val	Ala	Leu	Arg	Gly	Leu	Gly	Gly	Arg	Phe	Arg	Trp	Arg	Thr
1				5				10						15	
Gln	Ala	Val	Ala	Gly	Gly	Val	Arg	Gly	Ala	Ala	Arg	Gly	Ala	Ala	Ala
			20					25					30		
Gly	Gln	Arg	Asp	Tyr	Asp	Leu	Leu	Val	Val	Gly	Gly	Gly	Ser	Gly	Gly
		35				40						45			
Leu	Ala	Cys	Ala	Lys	Glu	Ala	Ala	Gln	Leu	Gly	Arg	Lys	Val	Ala	Val
	50					55					60				
Val	Asp	Tyr	Val	Glu	Pro	Ser	Pro	Gln	Gly	Thr	Arg	Trp	Gly	Leu	Gly
65					70					75					80
Gly	Thr	Cys	Val	Asn	Val	Gly	Cys	Ile	Pro	Lys	Lys	Leu	Met	His	Gln
				85				90						95	
Ala	Ala	Leu	Leu	Gly	Gly	Leu	Ile	Gln	Asp	Ala	Pro	Asn	Tyr	Gly	Trp
			100					105					110		
Glu	Val	Ala	Gln	Pro	Val	Pro	His	Asp	Trp	Arg	Lys	Met	Ala	Glu	Ala
	115						120					125			
Val	Gln	Asn	His	Val	Lys	Ser	Leu	Asn	Trp	Gly	His	Arg	Val	Gln	Leu

130	Gln	Asp	Arg	Lys	Val	Lys	Tyr	Phe	Asn	Ile	Lys	Ala	Ser	Phe	Val	Asp
145	Glu	His	Thr	Val	Cys	Gly	Val	Ala	Lys	Gly	Gly	Lys	Glu	Ile	Leu	Leu
					165					170						175
	Ser	Ala	Asp	His	Ile	Ile	Ile	Ala	Thr	Gly	Gly	Arg	Pro	Arg	Tyr	Pro
				180					185						190	
	Thr	His	Ile	Glu	Gly	Ala	Leu	Glu	Tyr	Gly	Ile	Thr	Ser	Asp	Asp	Ile
			195					200					205			
	Phe	Trp	Leu	Lys	Glu	Ser	Pro	Gly	Lys	Thr	Leu	Val	Val	Gly	Ala	Ser
		210					215					220				
	Tyr	Val	Ala	Leu	Glu	Cys	Ala	Gly	Phe	Leu	Thr	Gly	Ile	Gly	Leu	Asp
225					230						235					240
	Thr	Thr	Ile	Met	Met	Arg	Ser	Ile	Pro	Leu	Arg	Gly	Phe	Asp	Gln	Gln
				245					250						255	
	Met	Ser	Ser	Met	Val	Ile	Glu	His	Met	Ala	Ser	His	Gly	Thr	Arg	Phe
			260					265					270			
	Leu	Arg	Gly	Cys	Ala	Pro	Ser	Arg	Val	Arg	Arg	Leu	Pro	Asp	Gly	Gln
			275					280				285				
	Leu	Gln	Val	Thr	Trp	Glu	Asp	Ser	Thr	Thr	Gly	Lys	Glu	Asp	Thr	Gly
		290					295					300				
	Thr	Phe	Asp	Thr	Val	Leu	Trp	Ala	Ile	Gly	Arg	Val	Pro	Asp	Thr	Arg
305					310						315					320
	Ser	Leu	Asn	Leu	Glu	Lys	Ala	Gly	Val	Asp	Thr	Ser	Pro	Asp	Thr	Gln
				325					330						335	
	Lys	Ile	Leu	Val	Asp	Ser	Arg	Glu	Ala	Thr	Ser	Val	Pro	His	Ile	Tyr
			340					345					350			
	Ala	Ile	Gly	Asp	Val	Val	Glu	Gly	Arg	Pro	Glu	Leu	Thr	Pro	Ile	Ala
		355					360					365				
	Ile	Met	Ala	Gly	Arg	Leu	Leu	Val	Gln	Arg	Leu	Phe	Gly	Gly	Ser	Ser
		370				375					380					
	Asp	Leu	Met	Asp	Tyr	Asp	Asn	Val	Pro	Thr	Thr	Val	Phe	Thr	Pro	Leu
385					390					395						400
	Glu	Tyr	Gly	Cys	Val	Gly	Leu	Ser	Glu	Glu	Glu	Ala	Val	Ala	Arg	His
				405					410						415	
	Gly	Gln	Glu	His	Val	Glu	Val	Tyr	His	Ala	His	Tyr	Lys	Pro	Leu	Glu
			420					425					430			
	Phe	Thr	Val	Ala	Gly	Arg	Asp	Ala	Ser	Gln	Cys	Tyr	Val	Lys	Met	Val
		435					440					445				
	Cys	Leu	Arg	Glu	Pro	Pro	Gln	Leu	Val	Leu	Gly	Leu	His	Phe	Leu	Gly
		450				455				460						
	Pro	Asn	Ala	Gly	Glu	Val	Thr	Gln	Gly	Phe	Ala	Leu	Gly	Ile	Lys	Cys
465					470					475						480
	Gly	Ala	Ser	Tyr	Ala	Gln	Val	Met	Arg	Thr	Val	Gly	Ile	His	Pro	Thr
			485					490						495		
	Cys	Ser	Glu	Glu	Val	Val	Lys	Leu	Arg	Ile	Ser	Lys	Arg	Ser	Gly	Leu
			500					505					510			
	Asp	Pro	Thr	Val	Thr	Gly	Cys	Xaa	Gly							
		515					520									

<210> 294
 <211> 579
 <212> PRT
 <213> Homo sapiens

<220>
 <221> VARIANT
 <222> 578
 <223> Xaa = Any Amino Acid

<400> 294
 Ala Glu Arg Val Val Ile Phe Ser Lys Ser Tyr Cys Pro His Ser Thr
 1 5 10 15
 Arg Val Lys Glu Leu Phe Ser Ser Leu Gly Val Glu Cys Asn Val Leu
 20 25 30
 Glu Leu Asp Gln Val Asp Asp Gly Ala Arg Val Gln Glu Val Leu Ser

Cys Xaa Gly

<210> 295
 <211> 524
 <212> PRT
 <213> Homo sapien

<220>
 <221> VARIANT
 <222> 523
 <223> Xaa = Any Amino Acid

<400> 295
 Met Ala Ala Met Ala Val Ala Leu Arg Gly Leu Gly Gly Arg Phe Arg
 1 5 10 15
 Trp Arg Thr Gln Ala Val Ala Gly Gly Val Arg Gly Ala Ala Arg Gly
 20 25 30
 Ala Ala Ala Gly Gln Arg Asp Tyr Asp Leu Leu Val Val Gly Gly Gly
 35 40 45
 Ser Gly Gly Leu Ala Cys Ala Lys Glu Ala Ala Gln Leu Gly Arg Lys
 50 55 60
 Val Ala Val Val Asp Tyr Val Glu Pro Ser Pro Gln Gly Thr Arg Trp
 65 70 75 80
 Gly Leu Gly Gly Thr Cys Val Asn Val Gly Cys Ile Pro Lys Lys Leu
 85 90 95
 Met His Gln Ala Ala Leu Leu Gly Gly Leu Ile Gln Asp Ala Pro Asn
 100 105 110
 Tyr Gly Trp Glu Val Ala Gln Pro Val Pro His Asp Trp Arg Lys Met
 115 120 125
 Ala Glu Ala Val Gln Asn His Val Lys Ser Leu Asn Trp Gly His Arg
 130 135 140
 Val Gln Leu Gln Asp Arg Lys Val Lys Tyr Phe Asn Ile Lys Ala Ser
 145 150 155 160
 Phe Val Asp Glu His Thr Val Cys Gly Val Ala Lys Gly Gly Lys Glu
 165 170 175
 Ile Leu Leu Ser Ala Asp His Ile Ile Ala Thr Gly Gly Arg Pro
 180 185 190
 Arg Tyr Pro Thr His Ile Glu Gly Ala Leu Glu Tyr Gly Ile Thr Ser
 195 200 205
 Asp Asp Ile Phe Trp Leu Lys Glu Ser Pro Gly Lys Thr Leu Val Val
 210 215 220
 Gly Ala Ser Tyr Val Ala Leu Glu Cys Ala Gly Phe Leu Thr Gly Ile
 225 230 235 240
 Gly Leu Asp Thr Thr Ile Met Met Arg Ser Ile Pro Leu Arg Gly Phe
 245 250 255
 Asp Gln Gln Met Ser Ser Met Val Ile Glu His Met Ala Ser His Gly
 260 265 270
 Thr Arg Phe Leu Arg Gly Cys Ala Pro Ser Arg Val Arg Arg Leu Pro
 275 280 285
 Asp Gly Gln Leu Gln Val Thr Trp Glu Asp Ser Thr Thr Gly Lys Glu
 290 295 300
 Asp Thr Gly Thr Phe Asp Thr Val Leu Trp Ala Ile Gly Arg Val Pro
 305 310 315 320
 Asp Thr Arg Ser Leu Asn Leu Glu Lys Ala Gly Val Asp Thr Ser Pro
 325 330 335
 Asp Thr Gln Lys Ile Leu Val Asp Ser Arg Glu Ala Thr Ser Val Pro
 340 345 350
 His Ile Tyr Ala Ile Gly Asp Val Val Glu Gly Arg Pro Glu Leu Thr
 355 360 365
 Pro Ile Ala Ile Met Ala Gly Arg Leu Leu Val Gln Arg Leu Phe Gly
 370 375 380
 Gly Ser Ser Asp Leu Met Asp Tyr Asp Asn Val Pro Thr Thr Val Phe
 385 390 395 400
 Thr Pro Leu Glu Tyr Gly Cys Val Gly Leu Ser Glu Glu Glu Ala Val
 405 410 415

Ala	Arg	His	Gly	Gln	Glu	His	Val	Glu	Val	Tyr	His	Ala	His	Tyr	Lys
			420					425					430		
Pro	Leu	Glu	Phe	Thr	Val	Ala	Gly	Arg	Asp	Ala	Ser	Gln	Cys	Tyr	Val
		435					440					445			
Lys	Met	Val	Cys	Leu	Arg	Glu	Pro	Pro	Gln	Leu	Val	Leu	Gly	Leu	His
	450					455				460					
Phe	Leu	Gly	Pro	Asn	Ala	Gly	Glu	Val	Thr	Gln	Gly	Phe	Ala	Leu	Gly
465					470					475					480
Ile	Lys	Cys	Gly	Ala	Ser	Tyr	Ala	Gln	Val	Met	Arg	Thr	Val	Gly	Ile
				485					490					495	
His	Pro	Thr	Cys	Ser	Glu	Glu	Val	Val	Lys	Leu	Arg	Ile	Ser	Lys	Arg
			500					505					510		
Ser	Gly	Leu	Asp	Pro	Thr	Val	Thr	Gly	Cys	Xaa	Gly				
		515					520								

<210> 296
 <211> 577
 <212> PRT
 <213> Homo sapien

<220>
 <221> VARIANT
 <222> 576
 <223> Xaa = Any Amino Acid

<400> 296

Arg	Val	Val	Ile	Phe	Ser	Lys	Ser	Tyr	Cys	Pro	His	Ser	Thr	Arg	Val
1				5					10					15	
Lys	Glu	Leu	Phe	Ser	Ser	Leu	Gly	Val	Glu	Cys	Asn	Val	Leu	Glu	Leu
			20					25					30		
Asp	Gln	Val	Asp	Asp	Gly	Ala	Arg	Val	Gln	Glu	Val	Leu	Ser	Glu	Ile
		35				40						45			
Thr	Asn	Gln	Lys	Thr	Val	Pro	Asn	Ile	Phe	Val	Asn	Lys	Val	His	Val
	50					55					60				
Gly	Gly	Cys	Asp	Gln	Thr	Phe	Gln	Ala	Tyr	Gln	Ser	Gly	Leu	Leu	Gln
65					70				75						80
Lys	Leu	Leu	Gln	Glu	Asp	Leu	Ala	Tyr	Asp	Tyr	Asp	Leu	Ile	Ile	Ile
				85					90					95	
Gly	Gly	Gly	Ser	Gly	Gly	Leu	Ser	Cys	Ala	Lys	Glu	Ala	Ala	Ile	Leu
			100					105					110		
Gly	Lys	Lys	Val	Met	Val	Leu	Asp	Phe	Val	Val	Pro	Ser	Pro	Gln	Gly
		115					120					125			
Thr	Ser	Trp	Gly	Leu	Gly	Gly	Thr	Cys	Val	Asn	Val	Gly	Cys	Ile	Pro
	130					135					140				
Lys	Lys	Leu	Met	His	Gln	Ala	Ala	Leu	Leu	Gly	Gln	Ala	Leu	Cys	Asp
145					150					155					160
Ser	Arg	Lys	Phe	Gly	Trp	Glu	Tyr	Asn	Gln	Gln	Val	Arg	His	Asn	Trp
			165						170					175	
Glu	Thr	Met	Thr	Lys	Ala	Ile	Gln	Asn	His	Ile	Ser	Ser	Leu	Asn	Trp
			180					185					190		
Gly	Tyr	Arg	Leu	Ser	Leu	Arg	Glu	Lys	Ala	Val	Ala	Tyr	Val	Asn	Ser
		195					200					205			
Tyr	Gly	Glu	Phe	Val	Glu	His	His	Lys	Ile	Lys	Ala	Thr	Asn	Lys	Lys
	210					215					220				
Gly	Gln	Glu	Thr	Tyr	Tyr	Thr	Ala	Ala	Gln	Phe	Val	Ile	Ala	Thr	Gly
225					230					235					240
Glu	Arg	Pro	Arg	Tyr	Leu	Gly	Ile	Gln	Gly	Asp	Lys	Glu	Tyr	Cys	Ile
			245						250					255	
Thr	Ser	Asp	Asp	Leu	Phe	Ser	Leu	Pro	Tyr	Cys	Pro	Gly	Lys	Pro	Leu
			260					265					270		
Val	Val	Gly	Ala	Ser	Tyr	Val	Ala	Leu	Glu	Cys	Ala	Gly	Phe	Leu	Ala
		275					280					285			
Gly	Phe	Gly	Leu	Asp	Val	Thr	Val	Met	Val	Arg	Ser	Ile	Leu	Leu	Arg
	290					295					300				
Gly	Phe	Asp	Gln	Glu	Met	Ala	Glu	Lys	Val	Gly	Ser	Tyr	Met	Glu	Gln
305					310					315					320

His	Gly	Val	Lys	Phe	Leu	Arg	Lys	Phe	Ile	Pro	Val	Met	Val	Gln	Gln
				325					330					335	
Leu	Glu	Lys	Gly	Ser	Pro	Gly	Lys	Leu	Lys	Val	Leu	Ala	Lys	Ser	Thr
			340					345					350		
Glu	Gly	Thr	Glu	Thr	Ile	Glu	Gly	Val	Tyr	Asn	Thr	Val	Leu	Leu	Ala
		355				360						365			
Ile	Gly	Arg	Asp	Ser	Cys	Thr	Arg	Lys	Ile	Gly	Leu	Glu	Lys	Ile	Gly
	370					375					380				
Val	Lys	Ile	Asn	Glu	Lys	Ser	Gly	Lys	Ile	Pro	Val	Asn	Asp	Val	Glu
385					390					395					400
Gln	Thr	Asn	Val	Pro	Tyr	Val	Tyr	Ala	Val	Gly	Asp	Ile	Leu	Glu	Asp
				405					410					415	
Lys	Pro	Glu	Leu	Thr	Pro	Val	Ala	Ile	Gln	Ser	Gly	Lys	Leu	Leu	Ala
			420					425					430		
Gln	Arg	Leu	Phe	Gly	Ala	Ser	Leu	Glu	Lys	Cys	Asp	Tyr	Ile	Asn	Val
		435					440					445			
Pro	Thr	Thr	Val	Phe	Thr	Pro	Leu	Glu	Tyr	Gly	Cys	Cys	Gly	Leu	Ser
	450					455					460				
Glu	Glu	Lys	Ala	Ile	Glu	Val	Tyr	Lys	Lys	Glu	Asn	Leu	Glu	Ile	Tyr
465					470					475					480
His	Thr	Leu	Phe	Trp	Pro	Leu	Glu	Trp	Thr	Val	Ala	Gly	Arg	Glu	Asn
				485					490					495	
Asn	Thr	Cys	Tyr	Ala	Lys	Ile	Ile	Cys	Asn	Lys	Phe	Asp	His	Asp	Arg
			500					505					510		
Val	Ile	Gly	Phe	His	Ile	Leu	Gly	Pro	Asn	Ala	Gly	Glu	Val	Thr	Gln
		515					520					525			
Gly	Phe	Ala	Ala	Ala	Met	Lys	Cys	Gly	Leu	Thr	Lys	Gln	Leu	Leu	Asp
	530					535					540				
Asp	Thr	Ile	Gly	Ile	His	Pro	Thr	Cys	Gly	Glu	Val	Phe	Thr	Thr	Leu
545					550					555					560
Glu	Ile	Thr	Lys	Ser	Ser	Gly	Leu	Asp	Ile	Thr	Gln	Lys	Gly	Cys	Xaa
				565					570					575	

Gly

<210> 297
 <211> 494
 <212> PRT
 <213> Homo sapien

<400> 297

Met	Glu	Asp	Gln	Ala	Gly	Gln	Arg	Asp	Tyr	Asp	Leu	Leu	Val	Val	Gly
1				5					10					15	
Gly	Gly	Ser	Gly	Gly	Leu	Ala	Cys	Ala	Lys	Glu	Ala	Ala	Gln	Leu	Gly
			20					25					30		
Arg	Lys	Val	Ala	Val	Val	Asp	Tyr	Val	Glu	Pro	Ser	Pro	Gln	Gly	Thr
		35				40						45			
Arg	Trp	Gly	Leu	Gly	Gly	Thr	Cys	Val	Asn	Val	Gly	Cys	Ile	Pro	Lys
	50					55					60				
Lys	Leu	Met	His	Gln	Ala	Ala	Leu	Leu	Gly	Gly	Leu	Ile	Gln	Asp	Ala
65				70						75					80
Pro	Asn	Tyr	Gly	Trp	Glu	Val	Ala	Gln	Pro	Val	Pro	His	Asp	Trp	Arg
			85					90						95	
Lys	Met	Ala	Glu	Ala	Val	Gln	Asn	His	Val	Lys	Ser	Leu	Asn	Trp	Gly
		100						105					110		
His	Arg	Val	Gln	Leu	Gln	Asp	Arg	Lys	Val	Lys	Tyr	Phe	Asn	Ile	Lys
		115				120						125			
Ala	Ser	Phe	Val	Asp	Glu	His	Thr	Val	Cys	Gly	Val	Ala	Lys	Gly	Gly
	130					135					140				
Lys	Glu	Ile	Leu	Leu	Ser	Ala	Asp	His	Ile	Ile	Ile	Ala	Thr	Gly	Gly
145					150					155					160
Arg	Pro	Arg	Tyr	Pro	Thr	His	Ile	Glu	Gly	Ala	Leu	Glu	Tyr	Gly	Ile
			165					170						175	
Thr	Ser	Asp	Asp	Ile	Phe	Trp	Leu	Lys	Glu	Ser	Pro	Gly	Lys	Thr	Leu
			180					185					190		
Val	Val	Gly	Ala	Ser	Tyr	Val	Ala	Leu	Glu	Cys	Ala	Gly	Phe	Leu	Thr

		195					200				205				
Gly	Ile	Gly	Leu	Asp	Thr	Thr	Ile	Met	Met	Arg	Ser	Ile	Pro	Leu	Arg
	210					215					220				
Gly	Phe	Asp	Gln	Gln	Met	Ser	Ser	Met	Val	Ile	Glu	His	Met	Ala	Ser
225					230					235					240
His	Gly	Thr	Arg	Phe	Leu	Arg	Gly	Cys	Ala	Pro	Ser	Arg	Val	Arg	Arg
				245					250					255	
Leu	Pro	Asp	Gly	Gln	Leu	Gln	Val	Thr	Trp	Glu	Asp	Ser	Thr	Thr	Gly
			260					265					270		
Lys	Glu	Asp	Thr	Gly	Thr	Phe	Asp	Thr	Val	Leu	Trp	Ala	Ile	Gly	Arg
		275					280					285			
Val	Pro	Asp	Thr	Arg	Ser	Leu	Asn	Leu	Glu	Lys	Ala	Gly	Val	Asp	Thr
	290					295					300				
Ser	Pro	Asp	Thr	Gln	Lys	Ile	Leu	Val	Asp	Ser	Arg	Glu	Ala	Thr	Ser
305					310						315				320
Val	Pro	His	Ile	Tyr	Ala	Ile	Gly	Asp	Val	Val	Glu	Gly	Arg	Pro	Glu
				325				330						335	
Leu	Thr	Pro	Thr	Ala	Ile	Met	Ala	Gly	Arg	Leu	Leu	Val	Gln	Arg	Leu
			340					345					350		
Phe	Gly	Gly	Ser	Ser	Asp	Leu	Met	Asp	Tyr	Asp	Asn	Val	Pro	Thr	Thr
		355					360					365			
Val	Phe	Thr	Pro	Leu	Glu	Tyr	Gly	Cys	Val	Gly	Leu	Ser	Glu	Glu	Glu
	370					375					380				
Ala	Val	Ala	Arg	His	Gly	Gln	Glu	His	Val	Glu	Val	Tyr	His	Ala	His
385					390					395					400
Tyr	Lys	Pro	Leu	Glu	Phe	Thr	Val	Ala	Gly	Arg	Asp	Ala	Ser	Gln	Cys
				405				410						415	
Tyr	Val	Lys	Met	Val	Cys	Leu	Arg	Glu	Pro	Pro	Gln	Leu	Val	Leu	Gly
			420					425				430			
Leu	His	Phe	Leu	Gly	Pro	Asn	Ala	Gly	Glu	Val	Thr	Gln	Gly	Phe	Ala
		435					440					445			
Leu	Gly	Ile	Lys	Cys	Gly	Ala	Ser	Tyr	Ala	Gln	Val	Met	Arg	Thr	Val
	450					455					460				
Gly	Ile	His	Pro	Thr	Cys	Ser	Glu	Glu	Val	Val	Lys	Leu	Arg	Ile	Ser
465					470					475					480
Lys	Arg	Ser	Gly	Leu	Asp	Pro	Thr	Val	Thr	Gly	Cys	Cys	Gly		
				485					490						

<210> 298
 <211> 521
 <212> PRT
 <213> Homo sapien

<400> 298															
Met	Ala	Ala	Met	Ala	Val	Ala	Leu	Arg	Gly	Leu	Gly	Gly	Arg	Phe	Arg
1				5					10					15	
Trp	Arg	Thr	Gln	Ala	Val	Ala	Gly	Gly	Val	Arg	Gly	Ala	Ala	Arg	Gly
			20					25					30		
Ala	Ala	Gly	Gln	Arg	Asp	Tyr	Asp	Leu	Leu	Val	Val	Gly	Gly	Gly	Ser
		35					40					45			
Gly	Gly	Leu	Ala	Cys	Ala	Lys	Glu	Ala	Ala	Gln	Leu	Gly	Arg	Lys	Val
	50					55					60				
Ser	Val	Val	Asp	Tyr	Val	Glu	Pro	Ser	Pro	Gln	Gly	Thr	Arg	Trp	Gly
65					70					75				80	
Leu	Gly	Gly	Thr	Cys	Val	Asn	Val	Gly	Cys	Ile	Pro	Lys	Lys	Leu	Met
				85					90					95	
His	Gln	Ala	Ala	Leu	Leu	Gly	Gly	Leu	Ile	Gln	Asp	Ala	Pro	Asn	Tyr
			100					105					110		
Gly	Trp	Glu	Val	Ala	Gln	Pro	Val	Pro	His	Asp	Trp	Arg	Lys	Met	Ala
		115					120					125			
Glu	Ala	Val	Gln	Asn	His	Val	Lys	Ser	Leu	Asn	Trp	Gly	His	Arg	Val
	130					135					140				
Gln	Leu	Gln	Asp	Arg	Lys	Val	Lys	Tyr	Phe	Asn	Ile	Lys	Ala	Ser	Phe
145					150					155					160
Val	Asp	Glu	His	Thr	Val	Cys	Gly	Val	Ala	Lys	Gly	Gly	Lys	Glu	Ile
				165					170					175	

Leu	Leu	Ser	Ala	Asp	His	Ile	Ile	Ile	Ala	Thr	Gly	Gly	Arg	Pro	Arg
			180					185					190		
Tyr	Pro	Thr	His	Ile	Glu	Gly	Ala	Leu	Glu	Tyr	Gly	Ile	Thr	Ser	Asp
		195					200					205			
Asp	Ile	Phe	Trp	Leu	Lys	Glu	Ser	Pro	Gly	Lys	Thr	Leu	Val	Val	Gly
	210					215					220				
Ala	Ser	Tyr	Val	Ala	Leu	Glu	Cys	Ala	Gly	Phe	Leu	Thr	Gly	Ile	Gly
225					230					235					240
Leu	Asp	Thr	Thr	Ile	Met	Met	Arg	Ser	Ile	Pro	Leu	Arg	Gly	Phe	Asp
				245					250					255	
Gln	Gln	Met	Ser	Ser	Met	Val	Ile	Glu	His	Met	Ala	Ser	His	Gly	Thr
			260					265					270		
Arg	Phe	Leu	Arg	Gly	Cys	Ala	Pro	Ser	Arg	Val	Lys	Arg	Leu	Pro	Asp
		275					280					285			
Gly	Gln	Leu	Gln	Val	Thr	Trp	Glu	Asp	Ser	Thr	Thr	Gly	Lys	Glu	Asp
	290					295					300				
Thr	Gly	Thr	Phe	Asp	Thr	Val	Leu	Trp	Ala	Ile	Gly	Arg	Val	Pro	Asp
305					310					315					320
Thr	Arg	Ser	Leu	Asn	Leu	Glu	Lys	Ala	Gly	Val	Asp	Thr	Ser	Pro	Asp
				325					330					335	
Thr	Gln	Lys	Ile	Leu	Val	Asp	Ser	Arg	Glu	Ala	Thr	Ser	Val	Pro	His
			340					345					350		
Ile	Tyr	Ala	Ile	Gly	Asp	Val	Val	Glu	Gly	Arg	Pro	Glu	Leu	Thr	Pro
		355					360					365			
Thr	Ala	Ile	Met	Ala	Gly	Arg	Leu	Leu	Val	Gln	Arg	Leu	Phe	Gly	Gly
	370					375					380				
Ser	Ser	Asp	Leu	Met	Asp	Tyr	Asp	Asn	Val	Pro	Thr	Thr	Val	Phe	Thr
385					390					395					400
Pro	Leu	Glu	Tyr	Gly	Cys	Val	Gly	Leu	Ser	Glu	Glu	Glu	Ala	Val	Ala
				405					410					415	
Arg	His	Gly	Gln	Glu	His	Val	Glu	Val	Tyr	His	Ala	His	Tyr	Lys	Pro
			420					425					430		
Leu	Glu	Phe	Thr	Val	Ala	Gly	Arg	Asp	Ala	Ser	Gln	Cys	Tyr	Val	Lys
		435					440					445			
Met	Val	Cys	Leu	Arg	Glu	Pro	Pro	Gln	Leu	Val	Leu	Gly	Leu	His	Phe
	450					455					460				
Leu	Gly	Pro	Asn	Ala	Gly	Glu	Val	Thr	Gln	Gly	Phe	Ala	Leu	Gly	Ile
465					470					475					480
Lys	Cys	Gly	Ala	Ser	Tyr	Ala	Gln	Val	Met	Arg	Thr	Val	Gly	Ile	His
				485					490					495	
Pro	Thr	Cys	Ser	Glu	Glu	Val	Val	Lys	Leu	Arg	Ile	Ser	Lys	Arg	Ser
			500					505					510		
Gly	Leu	Asp	Pro	Thr	Val	Thr	Gly	Cys							
		515					520								

<210> 299
 <211> 549
 <212> PRT
 <213> Homo sapien

<400> 299
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 Ala Ala Glu Thr Asp Leu Pro Val Val Phe Val Lys Gln Arg Lys Ile
 20 25 30
 Gly Gly His Gly Pro Thr Leu Lys Ala Tyr Gln Glu Gly Arg Leu Gln
 35 40 45
 Lys Leu Leu Lys Met Asn Gly Pro Glu Asp Leu Pro Lys Ser Tyr Asp
 50 55 60
 Tyr Asp Leu Ile Ile Ile Gly Gly Gly Ser Gly Gly Leu Ala Ala Ala
 65 70 75 80
 Lys Glu Ala Ala Gln Tyr Gly Lys Lys Val Met Val Leu Asp Phe Val
 85 90 95
 Thr Pro Thr Pro Leu Gly Thr Arg Trp Gly Leu Gly Gly Thr Cys Val
 100 105 110
 Asn Val Gly Cys Ile Pro Lys Lys Leu Met His Gln Ala Ala Leu Leu

		115					120					125				
Gly	Gln	Ala	Leu	Gln	Asp	Ser	Arg	Asn	Tyr	Gly	Trp	Lys	Val	Glu	Glu	
	130					135					140					
Thr	Val	Lys	His	Asp	Trp	Asp	Arg	Met	Ile	Glu	Ala	Val	Gln	Asn	His	
145				150						155					160	
Ile	Gly	Ser	Leu	Asn	Trp	Gly	Tyr	Arg	Val	Ala	Leu	Arg	Glu	Lys	Lys	
			165					170						175		
Val	Val	Tyr	Glu	Asn	Ala	Tyr	Gly	Gln	Phe	Ile	Gly	Pro	His	Arg	Ile	
		180						185					190			
Lys	Ala	Thr	Asn	Asn	Lys	Gly	Lys	Glu	Lys	Ile	Tyr	Ser	Ala	Glu	Arg	
	195					200						205				
Phe	Leu	Ile	Ala	Thr	Gly	Glu	Arg	Pro	Arg	Tyr	Leu	Gly	Ile	Pro	Gly	
	210				215						220					
Asp	Lys	Glu	Tyr	Cys	Ile	Ser	Ser	Asp	Asp	Leu	Phe	Ser	Leu	Pro	Tyr	
225				230						235					240	
Cys	Pro	Gly	Lys	Thr	Leu	Val	Val	Gly	Ala	Ser	Tyr	Val	Ala	Leu	Glu	
			245					250						255		
Cys	Ala	Gly	Phe	Leu	Ala	Gly	Ile	Gly	Leu	Asp	Val	Thr	Val	Met	Val	
		260						265					270			
Arg	Ser	Ile	Leu	Leu	Arg	Gly	Phe	Asp	Gln	Asp	Met	Ala	Asn	Lys	Ile	
	275					280						285				
Gly	Glu	His	Met	Glu	Glu	His	Gly	Ile	Lys	Phe	Ile	Arg	Gln	Phe	Val	
	290					295					300					
Pro	Ile	Lys	Val	Glu	Gln	Ile	Glu	Ala	Gly	Thr	Pro	Gly	Arg	Leu	Arg	
305				310						315					320	
Val	Val	Ala	Gln	Ser	Thr	Asn	Ser	Glu	Glu	Ile	Ile	Glu	Gly	Glu	Tyr	
			325					330						335		
Asn	Thr	Val	Met	Leu	Ala	Ile	Gly	Arg	Asp	Ala	Cys	Thr	Arg	Lys	Ile	
		340						345					350			
Gly	Leu	Glu	Thr	Val	Gly	Val	Lys	Ile	Asn	Glu	Lys	Thr	Gly	Lys	Ile	
	355					360						365				
Pro	Val	Thr	Asp	Glu	Glu	Gln	Thr	Asn	Val	Pro	Tyr	Ile	Tyr	Ala	Ile	
	370					375					380					
Gly	Asp	Ile	Leu	Glu	Asp	Lys	Val	Glu	Leu	Thr	Pro	Val	Ala	Ile	Gln	
385				390						395					400	
Ala	Gly	Arg	Leu	Leu	Ala	Gln	Arg	Leu	Tyr	Ala	Gly	Ser	Thr	Val	Lys	
			405					410						415		
Cys	Asp	Tyr	Glu	Asn	Val	Pro	Thr	Thr	Val	Phe	Thr	Pro	Leu	Glu	Tyr	
		420						425					430			
Gly	Ala	Cys	Gly	Leu	Ser	Glu	Glu	Lys	Ala	Val	Glu	Lys	Phe	Gly	Glu	
	435							440					445			
Glu	Asn	Ile	Glu	Val	Tyr	His	Ser	Tyr	Phe	Trp	Pro	Leu	Glu	Trp	Thr	
	450					455					460					
Ile	Pro	Ser	Arg	Asp	Asn	Asn	Lys	Cys	Tyr	Ala	Lys	Ile	Ile	Cys	Asn	
465				470						475					480	
Thr	Lys	Asp	Asn	Glu	Arg	Val	Val	Gly	Phe	His	Val	Leu	Gly	Pro	Asn	
			485					490						495		
Ala	Gly	Glu	Val	Thr	Gln	Gly	Phe	Ala	Ala	Ala	Leu	Lys	Cys	Gly	Leu	
		500						505					510			
Thr	Lys	Lys	Gln	Leu	Asp	Ser	Thr	Ile	Gly	Ile	His	Pro	Val	Cys	Ala	
	515						520					525				
Glu	Val	Phe	Thr	Thr	Leu	Ser	Val	Thr	Lys	Arg	Ser	Gly	Ala	Ser	Ile	
	530					535					540					
Leu	Gln	Ala	Gly	Cys												
545																

<210> 300
 <211> 613
 <212> PRT
 <213> Mus musculus

<220>
 <221> VARIANT
 <222> 612
 <223> Xaa = Any Amino Acid

- 188 -

Ser	Arg	Asp	Asn	Asn	Lys	Cys	Tyr	Ala	Lys	Ile	Ile	Cys	Asn	Leu	Lys
530						535					540				
Asp	Asp	Glu	Arg	Val	Val	Gly	Phe	His	Val	Leu	Gly	Pro	Asn	Ala	Gly
545					550					555					560
Glu	Val	Thr	Gln	Gly	Phe	Ala	Ala	Ala	Leu	Lys	Cys	Gly	Leu	Thr	Lys
				565					570					575	
Gln	Gln	Leu	Asp	Ser	Thr	Ile	Gly	Ile	His	Pro	Val	Cys	Ala	Glu	Ile
			580					585					590		
Phe	Thr	Thr	Leu	Ser	Val	Thr	Lys	Arg	Ser	Gly	Gly	Asp	Ile	Leu	Gln
		595					600					605			
Ser	Gly	Cys	Xaa	Gly											
610															

<210> 301
 <211> 310
 <212> PRT
 <213> Mus musculus

<400> 301															
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Ile	Ile	Gly	Gly	Gly	Ser	Gly	Gly	Leu	Ala	Ala	Ala	Lys	Glu	Ala	Ala
			20					25					30		
Lys	Phe	Asp	Lys	Lys	Val	Leu	Val	Leu	Asp	Phe	Val	Thr	Pro	Thr	Pro
		35					40					45			
Leu	Gly	Thr	Arg	Trp	Gly	Leu	Gly	Gly	Thr	Cys	Val	Asn	Val	Gly	Cys
50						55					60				
Ile	Pro	Lys	Lys	Leu	Met	His	Gln	Ala	Ala	Leu	Leu	Gly	Gln	Ala	Leu
65					70					75					80
Lys	Asp	Ser	Arg	Asn	Tyr	Gly	Trp	Lys	Val	Glu	Asp	Thr	Val	Lys	His
				85					90					95	
Asp	Trp	Glu	Lys	Met	Thr	Glu	Ser	Val	Gln	Ser	His	Ile	Gly	Ser	Leu
			100					105					110		
Asn	Trp	Gly	Tyr	Arg	Val	Ala	Leu	Arg	Glu	Lys	Lys	Val	Val	Tyr	Glu
		115					120					125			
Asn	Ala	Tyr	Gly	Arg	Phe	Ile	Gly	Pro	His	Arg	Ile	Val	Ala	Thr	Asn
130						135					140				
Asn	Lys	Gly	Lys	Glu	Lys	Ile	Tyr	Ser	Ala	Glu	Arg	Phe	Leu	Ile	Ala
145					150					155					160
Thr	Gly	Glu	Arg	Pro	Arg	Tyr	Leu	Gly	Ile	Pro	Gly	Asp	Lys	Glu	Tyr
			165						170					175	
Cys	Ile	Ser	Ser	Asp	Asp	Leu	Phe	Ser	Leu	Pro	Tyr	Cys	Pro	Gly	Lys
			180					185					190		
Thr	Leu	Val	Val	Gly	Ala	Ser	Tyr	Val	Ala	Leu	Glu	Cys	Ala	Gly	Phe
		195					200					205			
Leu	Ala	Gly	Ile	Gly	Leu	Asp	Val	Thr	Val	Met	Val	Arg	Ser	Ile	Leu
210						215					220				
Leu	Arg	Gly	Phe	Asp	Gln	Asp	Met	Ala	Asn	Lys	Ile	Gly	Glu	His	Met
225					230					235					240
Glu	Glu	His	Gly	Ile	Lys	Phe	Ile	Arg	Gln	Phe	Val	Pro	Thr	Lys	Ile
			245						250					255	
Glu	Gln	Ile	Glu	Ala	Gly	Thr	Pro	Gly	Arg	Leu	Arg	Val	Thr	Ala	Gln
			260					265					270		
Ser	Thr	Asn	Ser	Glu	Glu	Thr	Ile	Glu	Gly	Glu	Phe	Asn	Thr	Val	Leu
		275					280					285			
Leu	Ala	Val	Gly	Arg	Asp	Ser	Cys	Thr	Arg	Thr	Ile	Gly	Leu	Glu	Thr
290						295					300				
Val	Gly	Val	Lys	Ile	Asn										
305					310										

<210> 302
 <211> 613
 <212> PRT
 <213> Mus musculus

<400> 302

Met	Ser	Ser	Pro	Pro	Gly	Arg	Arg	Ala	Arg	Leu	Ala	Ser	Pro	Gly	Thr
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Ser	Arg	Pro	Ser	Ser	Glu	Ala	Arg	Glu	Glu	Leu	Arg	Arg	Arg	Leu	Arg
			20					25					30		
Asp	Leu	Ile	Glu	Gly	Asn	Arg	Val	Met	Ile	Phe	Ser	Lys	Ser	Tyr	Cys
		35					40					45			
Pro	His	Ser	Thr	Arg	Val	Lys	Glu	Leu	Phe	Ser	Ser	Leu	Gly	Val	Val
	50					55					60				
Tyr	Asn	Ile	Leu	Glu	Leu	Asp	Gln	Val	Asp	Asp	Gly	Ala	Ser	Val	Gln
65				70					75						80
Glu	Val	Leu	Thr	Glu	Ile	Ser	Asn	Gln	Lys	Thr	Val	Pro	Asn	Ile	Phe
			85						90					95	
Val	Asn	Lys	Val	His	Val	Gly	Gly	Cys	Asp	Arg	Thr	Phe	Gln	Ala	His
			100					105					110		
Gln	Asn	Gly	Leu	Leu	Gln	Lys	Leu	Leu	Gln	Asp	Asp	Ser	Ala	His	Asp
		115					120					125			
Tyr	Asp	Leu	Ile	Ile	Ile	Gly	Gly	Gly	Ser	Gly	Gly	Leu	Ser	Cys	Ala
	130					135					140				
Lys	Glu	Ala	Ala	Asn	Leu	Gly	Lys	Lys	Val	Met	Val	Leu	Asp	Phe	Val
145				150					155						160
Val	Pro	Ser	Pro	Gln	Gly	Thr	Thr	Trp	Gly	Leu	Gly	Gly	Thr	Cys	Val
			165					170						175	
Asn	Val	Gly	Cys	Ile	Pro	Lys	Lys	Leu	Met	His	Gln	Ala	Ala	Leu	Leu
			180					185					190		
Gly	His	Ala	Leu	Gln	Asp	Ala	Lys	Lys	Tyr	Gly	Trp	Glu	Tyr	Asn	Gln
		195					200					205			
Gln	Val	Lys	His	Asn	Trp	Glu	Ala	Met	Thr	Glu	Ala	Ile	Gln	Ser	His
	210					215					220				
Ile	Gly	Ser	Leu	Asn	Trp	Gly	Tyr	Arg	Val	Thr	Leu	Arg	Glu	Lys	Gly
225				230						235					240
Val	Thr	Tyr	Val	Asn	Ser	Phe	Gly	Glu	Phe	Val	Asp	Leu	His	Lys	Ile
			245					250						255	
Lys	Ala	Thr	Asn	Lys	Lys	Gly	Gln	Glu	Thr	Phe	Tyr	Thr	Ala	Ser	Lys
			260					265					270		
Phe	Val	Ile	Ala	Thr	Gly	Glu	Arg	Pro	Arg	Tyr	Leu	Gly	Ile	Gln	Gly
		275					280					285			
Asp	Lys	Glu	Tyr	Cys	Ile	Thr	Ser	Asp	Asp	Leu	Phe	Ser	Leu	Pro	Tyr
	290					295					300				
Cys	Pro	Gly	Cys	Thr	Leu	Val	Val	Gly	Ala	Ser	Tyr	Val	Gly	Leu	Glu
305				310						315					320
Cys	Ala	Gly	Phe	Leu	Ala	Gly	Leu	Gly	Leu	Asp	Val	Thr	Val	Met	Val
			325					330						335	
Arg	Ser	Val	Leu	Leu	Arg	Gly	Phe	Asp	Gln	Glu	Met	Ala	Glu	Lys	Val
			340					345					350		
Gly	Ser	Tyr	Leu	Glu	Gln	Gln	Gly	Val	Lys	Phe	Gln	Arg	Lys	Phe	Thr
		355					360					365			
Pro	Ile	Leu	Val	Gln	Gln	Leu	Glu	Lys	Gly	Leu	Pro	Gly	Lys	Leu	Lys
	370					375					380				
Val	Val	Ala	Lys	Ser	Thr	Glu	Gly	Pro	Glu	Thr	Val	Glu	Gly	Ile	Tyr
385				390						395					400
Asn	Thr	Val	Leu	Leu	Ala	Ile	Gly	Arg	Asp	Ser	Cys	Thr	Arg	Lys	Ile
			405					410						415	
Gly	Leu	Glu	Lys	Ile	Gly	Val	Lys	Ile	Asn	Glu	Lys	Asn	Gly	Lys	Ile
		420						425					430		
Pro	Val	Asn	Asp	Val	Glu	Gln	Thr	Asn	Val	Pro	His	Val	Tyr	Ala	Ile
		435					440					445			
Gly	Asp	Ile	Leu	Asp	Gly	Lys	Pro	Glu	Leu	Thr	Pro	Val	Ala	Ile	Gln
	450					455					460				
Ala	Gly	Lys	Leu	Leu	Ala	Arg	Arg	Leu	Phe	Gly	Val	Ser	Leu	Glu	Lys
465				470						475					480
Cys	Asp	Tyr	Ile	Asn	Ile	Pro	Thr	Thr	Val	Phe	Thr	Pro	Leu	Glu	Tyr
			485					490						495	
Gly	Cys	Cys	Gly	Leu	Ser	Glu	Glu	Lys	Ala	Ile	Glu	Met	Tyr	Lys	Lys
			500					505					510		
Glu	Asn	Leu	Glu	Val	Tyr	His	Thr	Leu	Phe	Trp	Pro	Leu	Glu	Trp	Thr
		515					520					525			

Val	Ala	Gly	Arg	Asp	Asn	Asn	Thr	Cys	Tyr	Ala	Lys	Ile	Ile	Cys	Asn
	530					535					540				
Lys	Phe	Asp	Asn	Glu	Arg	Val	Val	Gly	Phe	His	Leu	Leu	Gly	Pro	Asn
545					550					555					560
Ala	Gly	Glu	Ile	Thr	Gln	Gly	Phe	Ala	Ala	Ala	Met	Lys	Cys	Gly	Leu
				565				570						575	
Thr	Lys	Gln	Leu	Leu	Asp	Asp	Thr	Ile	Gly	Ile	His	Pro	Thr	Cys	Gly
			580					585					590		
Glu	Val	Phe	Thr	Thr	Leu	Glu	Ile	Thr	Lys	Ser	Ser	Gly	Leu	Asp	Ile
		595					600					605			
Thr	Gln	Lys	Gly	Cys											
	610														

<210> 303
 <211> 524
 <212> PRT
 <213> Mus musculus

<220>
 <221> VARIANT
 <222> 523
 <223> Xaa = Any Amino Acid

<400>	303														
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Arg	Pro	Arg	Thr	Arg	Ala	Leu	Thr	Arg	Gly	Thr	Arg	Gly	Ala	Ala	Ser
			20					25					30		
Ala	Ala	Gly	Gly	Gln	Gln	Ser	Phe	Asp	Leu	Leu	Val	Ile	Gly	Gly	Gly
		35					40					45			
Ser	Gly	Gly	Leu	Ala	Cys	Ala	Lys	Glu	Ala	Ala	Gln	Leu	Gly	Lys	Lys
	50				55					60					
Val	Ala	Val	Ala	Asp	Tyr	Val	Glu	Pro	Ser	Pro	Arg	Gly	Thr	Lys	Trp
65				70					75						80
Gly	Leu	Gly	Gly	Thr	Cys	Val	Asn	Val	Gly	Cys	Ile	Pro	Lys	Lys	Leu
				85					90					95	
Met	His	Gln	Ala	Ala	Leu	Leu	Gly	Gly	Met	Ile	Arg	Asp	Ala	His	His
			100					105					110		
Tyr	Gly	Trp	Glu	Val	Ala	Gln	Pro	Val	Gln	His	Asn	Trp	Lys	Thr	Met
		115					120					125			
Ala	Glu	Ala	Val	Gln	Asn	His	Val	Lys	Ser	Leu	Asn	Trp	Gly	His	Arg
	130				135						140				
Val	Gln	Leu	Gln	Asp	Arg	Lys	Val	Lys	Tyr	Phe	Asn	Ile	Lys	Ala	Ser
145				150					155						160
Phe	Val	Asp	Glu	His	Thr	Val	Arg	Gly	Val	Asp	Lys	Gly	Gly	Lys	Ala
				165				170						175	
Thr	Leu	Leu	Ser	Ala	Glu	His	Ile	Val	Ile	Ala	Thr	Gly	Gly	Arg	Pro
			180					185					190		
Arg	Tyr	Pro	Thr	Gln	Val	Lys	Gly	Ala	Leu	Glu	Tyr	Gly	Ile	Thr	Ser
		195					200					205			
Asp	Asp	Ile	Phe	Trp	Leu	Lys	Glu	Ser	Pro	Gly	Lys	Thr	Leu	Val	Val
	210				215						220				
Gly	Ala	Ser	Tyr	Val	Ala	Leu	Glu	Cys	Ala	Gly	Phe	Leu	Thr	Gly	Ile
225				230					235						240
Gly	Leu	Asp	Thr	Thr	Val	Met	Met	Arg	Ser	Ile	Pro	Leu	Arg	Gly	Phe
				245				250						255	
Asp	Gln	Gln	Met	Ser	Ser	Leu	Val	Thr	Glu	His	Met	Glu	Ser	His	Gly
			260					265					270		
Thr	Gln	Phe	Leu	Lys	Gly	Cys	Val	Pro	Ser	His	Ile	Lys	Lys	Leu	Pro
		275					280					285			
Thr	Asn	Gln	Leu	Gln	Val	Thr	Trp	Glu	Asp	His	Ala	Ser	Gly	Lys	Glu
	290				295						300				
Asp	Thr	Gly	Thr	Phe	Asp	Thr	Val	Leu	Trp	Ala	Ile	Gly	Arg	Val	Pro
305				310					315						320
Glu	Thr	Arg	Thr	Leu	Asn	Leu	Glu	Lys	Ala	Gly	Ile	Ser	Thr	Asn	Pro
				325					330					335	

Lys	Asn	Gln	Lys	Ile	Ile	Val	Asp	Ala	Gln	Glu	Ala	Thr	Ser	Val	Pro
			340					345					350		
His	Ile	Tyr	Ala	Ile	Gly	Asp	Val	Ala	Glu	Gly	Arg	Pro	Glu	Leu	Thr
		355				360					365				
Pro	Thr	Ala	Ile	Lys	Ala	Gly	Lys	Leu	Leu	Ala	Gln	Arg	Leu	Phe	Gly
	370					375					380				
Lys	Ser	Ser	Thr	Leu	Met	Asp	Tyr	Ser	Asn	Val	Pro	Thr	Thr	Val	Phe
385					390					395					400
Thr	Pro	Leu	Glu	Tyr	Gly	Cys	Val	Gly	Leu	Ser	Glu	Glu	Glu	Ala	Val
			405					410						415	
Ala	Leu	His	Gly	Gln	Glu	His	Val	Glu	Val	Tyr	His	Ala	Tyr	Tyr	Lys
			420					425					430		
Pro	Leu	Glu	Phe	Thr	Val	Ala	Asp	Arg	Asp	Ala	Ser	Gln	Cys	Tyr	Ile
		435				440						445			
Lys	Met	Val	Cys	Met	Arg	Glu	Pro	Pro	Gln	Leu	Val	Leu	Gly	Leu	His
	450					455					460				
Phe	Leu	Gly	Pro	Asn	Ala	Gly	Glu	Val	Thr	Gln	Gly	Phe	Ala	Leu	Gly
465					470					475					480
Ile	Lys	Cys	Gly	Ala	Ser	Tyr	Ala	Gln	Val	Met	Gln	Thr	Val	Gly	Ile
				485				490						495	
His	Pro	Thr	Cys	Ser	Glu	Glu	Val	Val	Lys	Leu	His	Ile	Ser	Lys	Arg
			500					505					510		
Ser	Gly	Leu	Glu	Pro	Thr	Val	Thr	Gly	Cys	Xaa	Gly				
		515					520								

<210> 304
 <211> 528
 <212> PRT
 <213> Mus musculus

<220>
 <221> VARIANT
 <222> 527
 <223> Xaa = Any Amino Acid

<400>	304														
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Ser	Arg	Arg	Phe	Arg	Pro	Arg	Thr	Arg	Ala	Leu	Thr	Arg	Gly	Thr	Arg
			20					25					30		
Gly	Ala	Ala	Ser	Ala	Ala	Gly	Gly	Gln	Gln	Ser	Phe	Asp	Leu	Leu	Val
		35				40						45			
Ile	Gly	Gly	Gly	Ser	Gly	Gly	Leu	Ala	Cys	Ala	Lys	Glu	Ala	Ala	Gln
	50				55					60					
Leu	Gly	Lys	Lys	Val	Ala	Val	Ala	Asp	Tyr	Val	Glu	Pro	Ser	Pro	Arg
65				70						75					80
Gly	Thr	Lys	Trp	Gly	Leu	Gly	Gly	Thr	Cys	Val	Asn	Val	Gly	Cys	Ile
			85					90						95	
Pro	Lys	Lys	Leu	Met	His	Gln	Ala	Ala	Leu	Leu	Gly	Gly	Met	Ile	Arg
			100					105					110		
Asp	Ala	His	His	Tyr	Gly	Trp	Glu	Val	Ala	Gln	Pro	Val	Gln	His	Asn
		115				120						125			
Trp	Lys	Thr	Met	Ala	Glu	Ala	Val	Gln	Asn	His	Val	Lys	Ser	Leu	Asn
	130				135						140				
Trp	Gly	His	Arg	Val	Gln	Leu	Gln	Asp	Arg	Lys	Val	Lys	Tyr	Phe	Asn
145					150					155					160
Ile	Lys	Ala	Ser	Phe	Val	Asp	Glu	His	Thr	Val	Arg	Gly	Val	Asp	Lys
			165					170						175	
Gly	Gly	Lys	Ala	Thr	Leu	Leu	Ser	Ala	Glu	His	Ile	Val	Ile	Ala	Thr
			180					185					190		
Gly	Gly	Arg	Pro	Arg	Tyr	Pro	Thr	Gln	Val	Lys	Gly	Ala	Leu	Glu	Tyr
		195				200						205			
Gly	Ile	Thr	Ser	Asp	Asp	Ile	Phe	Trp	Leu	Lys	Glu	Ser	Pro	Gly	Lys
	210				215						220				
Thr	Leu	Val	Val	Gly	Ala	Ser	Tyr	Val	Ala	Leu	Glu	Cys	Ala	Gly	Phe
225					230					235					240

Leu	Thr	Gly	Ile	Gly	Leu	Asp	Thr	Thr	Val	Met	Met	Arg	Ser	Ile	Pro	245	250	255
Leu	Arg	Gly	Phe	Asp	Gln	Gln	Met	Ser	Ser	Leu	Val	Thr	Glu	His	Met	260	265	270
Glu	Ser	His	Gly	Thr	Gln	Phe	Leu	Lys	Gly	Cys	Val	Pro	Ser	His	Ile	275	280	285
Lys	Lys	Leu	Pro	Thr	Asn	Gln	Leu	Gln	Val	Thr	Trp	Glu	Asp	His	Ala	290	295	300
Ser	Gly	Lys	Glu	Asp	Thr	Gly	Thr	Phe	Asp	Thr	Val	Leu	Trp	Ala	Ile	305	310	315
Gly	Arg	Val	Pro	Glu	Thr	Arg	Thr	Leu	Asn	Leu	Glu	Lys	Ala	Gly	Ile	325	330	335
Ser	Thr	Asn	Pro	Lys	Asn	Gln	Lys	Ile	Ile	Val	Asp	Ala	Gln	Glu	Ala	340	345	350
Thr	Ser	Val	Pro	His	Ile	Tyr	Ala	Ile	Gly	Asp	Val	Ala	Glu	Gly	Arg	355	360	365
Pro	Glu	Leu	Thr	Pro	Thr	Ala	Ile	Lys	Ala	Gly	Lys	Leu	Leu	Ala	Gln	370	375	380
Arg	Leu	Phe	Gly	Lys	Ser	Ser	Thr	Leu	Met	Asp	Tyr	Ser	Asn	Val	Pro	385	390	395
Thr	Thr	Val	Phe	Thr	Pro	Leu	Glu	Tyr	Gly	Cys	Val	Gly	Leu	Ser	Glu	405	410	415
Glu	Glu	Ala	Val	Ala	Leu	His	Gly	Gln	Glu	His	Val	Glu	Val	Tyr	His	420	425	430
Ala	Tyr	Tyr	Lys	Pro	Leu	Glu	Phe	Thr	Val	Ala	Asp	Arg	Asp	Ala	Ser	435	440	445
Gln	Cys	Tyr	Ile	Lys	Met	Val	Cys	Met	Arg	Glu	Pro	Pro	Gln	Leu	Val	450	455	460
Leu	Gly	Leu	His	Phe	Leu	Gly	Pro	Asn	Ala	Gly	Glu	Val	Thr	Gln	Gly	465	470	475
Phe	Ala	Leu	Gly	Ile	Lys	Cys	Gly	Ala	Ser	Tyr	Ala	Gln	Val	Met	Gln	485	490	495
Thr	Val	Gly	Ile	His	Pro	Thr	Cys	Ser	Glu	Glu	Val	Val	Lys	Leu	His	500	505	510
Ile	Ser	Lys	Arg	Ser	Gly	Leu	Glu	Pro	Thr	Val	Thr	Gly	Cys	Xaa	Gly	515	520	525

<210> 305
 <211> 520
 <212> PRT
 <213> Mus musculus

<400> 305

Met	Val	Ala	Ala	Leu	Arg	Gly	Pro	Ser	Arg	Arg	Phe	Arg	Pro	Arg	Thr	1	5	10	15
Arg	Ala	Leu	Thr	Arg	Gly	Thr	Arg	Gly	Ala	Ala	Ser	Ala	Ala	Gly	Gly	20	25	30	35
Gln	Gln	Ser	Phe	Asp	Leu	Leu	Val	Ile	Gly	Gly	Gly	Ser	Gly	Gly	Leu	40	45	50	55
Ala	Cys	Ala	Lys	Glu	Ala	Ala	Gln	Leu	Gly	Lys	Lys	Val	Ala	Val	Ala	60	65	70	75
Asp	Tyr	Val	Glu	Pro	Ser	Pro	Arg	Gly	Thr	Lys	Trp	Gly	Leu	Gly	Gly	80	85	90	95
Thr	Cys	Val	Asn	Val	Gly	Cys	Ile	Pro	Lys	Lys	Leu	Met	His	Gln	Ala	100	105	110	115
Ala	Leu	Leu	Gly	Gly	Met	Ile	Arg	Asp	Ala	His	His	Tyr	Gly	Trp	Glu	120	125	130	135
Val	Ala	Gln	Pro	Val	Gln	His	Asn	Trp	Lys	Thr	Met	Ala	Glu	Ala	Val	140	145	150	155
Gln	Asn	His	Val	Lys	Ser	Leu	Asn	Trp	Gly	His	Arg	Val	Gln	Leu	Gln	160	165	170	175
Asp	Arg	Lys	Val	Lys	Tyr	Phe	Asn	Ile	Lys	Ala	Ser	Phe	Val	Asp	Glu	180	185	190	195
His	Thr	Val	Arg	Gly	Val	Asp	Lys	Gly	Gly	Lys	Ala	Thr	Leu	Leu	Ser	200	205	210	215
Ala	Glu	His	Ile	Val	Ile	Ala	Thr	Gly	Gly	Arg	Pro	Arg	Tyr	Pro	Thr	220	225	230	235

Gln	Val	Lys	180	Gly	Ala	Leu	Glu	Tyr	185	Gly	Ile	Thr	Ser	Asp	190	Asp	Ile	Phe
Trp	Leu	Lys	195	Glu	Ser	Pro	Gly	Lys	200	Thr	Leu	Val	Val	Gly	205	Ala	Ser	Tyr
Val	Ala	Leu	210	Glu	Cys	Ala	Gly	Phe	215	Leu	Thr	Gly	Ile	Gly	220	Leu	Asp	Thr
225	Thr	Val	Met	Met	Arg	Ser	Ile	Pro	230	Leu	Arg	Gly	Phe	Asp	235	Gln	Gln	Met
Ser	Ser	Leu	245	Val	Thr	Glu	His	Met	250	Glu	Ser	His	Gly	Thr	255	Gln	Phe	Leu
Lys	Gly	Cys	260	Val	Pro	Ser	His	Ile	265	Lys	Lys	Leu	Pro	Thr	270	Asn	Gln	Leu
Gln	Val	Thr	275	Trp	Glu	Asp	His	Ala	280	Ser	Gly	Lys	Glu	Asp	285	Thr	Gly	Thr
290	Phe	Asp	Thr	Val	Leu	Trp	Ala	Ile	295	Gly	Arg	Val	Pro	Glu	300	Thr	Arg	Thr
305	Leu	Asn	Leu	Glu	Lys	Ala	Gly	Ile	310	Ser	Thr	Asn	Pro	Lys	315	Asn	Gln	Lys
Ile	Ile	Val	325	Asp	Ala	Gln	Glu	Ala	330	Thr	Ser	Val	Pro	His	335	Ile	Tyr	Ala
Ile	Gly	Asp	340	Val	Ala	Glu	Gly	Arg	345	Pro	Glu	Leu	Thr	Pro	350	Thr	Ala	Ile
Lys	Ala	Gly	355	Lys	Leu	Leu	Ala	Gln	360	Arg	Leu	Phe	Gly	Lys	365	Ser	Ser	Thr
370	Leu	Met	Asp	Tyr	Ser	Asn	Val	Pro	375	Thr	Thr	Val	Phe	Thr	380	Pro	Leu	Glu
385	Tyr	Gly	Cys	Val	Gly	Leu	Ser	Glu	390	Glu	Glu	Ala	Val	Ala	395	Leu	His	Gly
Gln	Glu	His	405	Val	Glu	Val	Tyr	His	410	Ala	Tyr	Tyr	Lys	Pro	415	Leu	Glu	Phe
Thr	Val	Ala	420	Asp	Arg	Asp	Ala	Ser	425	Gln	Cys	Tyr	Ile	Lys	430	Met	Val	Cys
Met	Arg	Glu	435	Pro	Pro	Gln	Leu	Val	440	Leu	Gly	Leu	His	Phe	445	Leu	Gly	Pro
450	Asn	Ala	Gly	Glu	Val	Thr	Gln	Gly	455	Phe	Ala	Leu	Gly	Ile	460	Lys	Cys	Gly
465	Ala	Ser	Tyr	Ala	Gln	Val	Met	Gln	470	Thr	Val	Gly	Ile	His	475	Pro	Thr	Cys
Ser	Glu	Glu	485	Val	Val	Lys	Leu	His	490	Ile	Ser	Lys	Arg	Ser	495	Gly	Leu	Glu
Pro	Thr	Val	500	Thr	Gly	Cys	Cys	Gly	505						510			
			515						520									

<210> 306
 <211> 499
 <212> PRT
 <213> Mus musculus

<400> 306

Met	Asn	Gly	Ser	Lys	Asp	Pro	Pro	Gly	Ser	Tyr	Asp	Phe	Asp	Leu	Ile
1				5				10						15	
Ile	Ile	Gly	Gly	Gly	Ser	Gly	Gly	Leu	Ala	Ala	Ala	Lys	Glu	Ala	Ala
				20				25					30		
Lys	Phe	Asp	Lys	Lys	Val	Leu	Val	Leu	Asp	Phe	Val	Thr	Pro	Thr	Pro
				35				40				45			
Leu	Gly	Thr	Arg	Trp	Gly	Leu	Gly	Gly	Thr	Cys	Val	Asn	Val	Gly	Cys
50						55					60				
Ile	Pro	Lys	Lys	Leu	Met	His	Gln	Ala	Ala	Leu	Leu	Gly	Gln	Ala	Leu
65					70					75					80
Lys	Asp	Ser	Arg	Asn	Tyr	Gly	Trp	Lys	Val	Glu	Asp	Thr	Val	Lys	His
				85				90						95	
Asp	Trp	Glu	Lys	Met	Thr	Glu	Ser	Val	Gln	Ser	His	Ile	Gly	Ser	Leu
				100				105					110		
Asn	Trp	Gly	Tyr	Arg	Val	Ala	Leu	Arg	Glu	Lys	Lys	Val	Val	Tyr	Glu
				115				120					125		

Asn	Ala	Tyr	Gly	Arg	Phe	Ile	Gly	Pro	His	Arg	Ile	Val	Ala	Thr	Asn
130						135					140				
Asn	Lys	Gly	Lys	Glu	Lys	Ile	Tyr	Ser	Ala	Glu	Arg	Phe	Leu	Ile	Ala
145					150					155					160
Thr	Gly	Glu	Arg	Pro	Arg	Tyr	Leu	Gly	Ile	Pro	Gly	Asp	Lys	Glu	Tyr
				165					170					175	
Cys	Ile	Ser	Ser	Asp	Asp	Leu	Phe	Ser	Leu	Pro	Tyr	Cys	Pro	Gly	Lys
			180					185					190		
Thr	Leu	Val	Val	Gly	Ala	Ser	Tyr	Val	Ala	Leu	Glu	Cys	Ala	Gly	Phe
		195					200					205			
Leu	Ala	Gly	Ile	Gly	Leu	Asp	Val	Thr	Val	Met	Val	Arg	Ser	Ile	Leu
	210					215					220				
Leu	Arg	Gly	Phe	Asp	Gln	Asp	Met	Ala	Asn	Lys	Ile	Gly	Glu	His	Met
225					230					235					240
Glu	Glu	His	Gly	Ile	Lys	Phe	Ile	Arg	Gln	Phe	Val	Pro	Thr	Lys	Ile
				245					250					255	
Glu	Gln	Ile	Glu	Ala	Gly	Thr	Pro	Gly	Arg	Leu	Arg	Val	Thr	Ala	Gln
			260					265					270		
Ser	Thr	Asn	Ser	Glu	Glu	Thr	Ile	Glu	Gly	Glu	Phe	Asn	Thr	Val	Leu
		275					280					285			
Leu	Ala	Val	Gly	Arg	Asp	Ser	Cys	Thr	Arg	Thr	Ile	Gly	Leu	Glu	Thr
	290					295					300				
Val	Gly	Val	Lys	Ile	Asn	Glu	Lys	Thr	Gly	Lys	Ile	Pro	Val	Thr	Asp
305					310					315					320
Glu	Glu	Gln	Thr	Asn	Val	Pro	Tyr	Ile	Tyr	Ala	Ile	Gly	Asp	Ile	Leu
				325					330					335	
Glu	Gly	Lys	Leu	Glu	Leu	Thr	Pro	Val	Ala	Ile	Gln	Ala	Gly	Arg	Leu
			340					345					350		
Leu	Ala	Gln	Arg	Leu	Tyr	Gly	Gly	Ser	Asn	Val	Lys	Cys	Asp	Tyr	Asp
	355					360						365			
Asn	Val	Pro	Thr	Thr	Val	Phe	Thr	Pro	Leu	Glu	Tyr	Gly	Cys	Cys	Gly
	370					375					380				
Leu	Ser	Glu	Glu	Lys	Ala	Val	Glu	Lys	Phe	Gly	Glu	Glu	Asn	Ile	Glu
385					390					395					400
Val	Tyr	His	Ser	Phe	Phe	Trp	Pro	Leu	Glu	Trp	Thr	Val	Pro	Ser	Arg
				405					410					415	
Asp	Asn	Asn	Lys	Cys	Tyr	Ala	Lys	Ile	Ile	Cys	Asn	Leu	Lys	Asp	Asp
			420					425					430		
Glu	Arg	Val	Val	Gly	Phe	His	Val	Leu	Gly	Pro	Asn	Ala	Gly	Glu	Val
	435						440					445			
Thr	Gln	Gly	Phe	Ala	Ala	Ala	Leu	Lys	Cys	Gly	Leu	Thr	Lys	Gln	Gln
	450					455					460				
Leu	Asp	Ser	Thr	Ile	Gly	Ile	His	Pro	Val	Cys	Ala	Glu	Ile	Phe	Thr
465					470					475					480
Thr	Leu	Ser	Val	Thr	Lys	Arg	Ser	Gly	Gly	Asp	Ile	Leu	Gln	Ser	Gly
				485					490					495	
Cys	Cys	Gly													

<210> 307
 <211> 497
 <212> PRT
 <213> Rattus norvegicus

<220>
 <221> VARIANT
 <222> 497
 <223> Xaa = Any Amino Acid

<400> 307
 Met Asn Asp Ser Lys Asp Ala Pro Lys Ser Tyr Asp Phe Asp Leu Ile
 1 5 10 15
 Ile Ile Gly Gly Gly Ser Gly Gly Leu Ala Ala Ala Lys Glu Ala Ala
 20 25 30
 Lys Phe Asp Lys Lys Val Met Val Leu Asp Phe Val Thr Pro Thr Pro
 35 40 45

Leu	Gly	Thr	Asn	Gly	Gly	Leu	Gly	Gly	Thr	Cys	Val	Asn	Val	Gly	Cys
50						55					60				
Ile	Pro	Lys	Lys	Leu	Met	His	Gln	Ala	Ala	Leu	Leu	Gly	Gln	Ala	Leu
65					70					75					80
Lys	Asp	Ser	Arg	Asn	Tyr	Gly	Trp	Lys	Leu	Glu	Asp	Thr	Val	Lys	His
				85					90					95	
Asp	Trp	Glu	Lys	Met	Thr	Glu	Ser	Val	Gln	Asn	His	Ile	Gly	Ser	Leu
			100					105					110		
Asn	Trp	Gly	Tyr	Arg	Val	Ala	Leu	Arg	Glu	Lys	Lys	Val	Val	Tyr	Glu
		115					120					125			
Asn	Ala	Tyr	Gly	Lys	Phe	Ile	Gly	Pro	His	Lys	Ile	Met	Ala	Thr	Asn
	130					135					140				
Asn	Lys	Gly	Lys	Glu	Lys	Val	Tyr	Ser	Ala	Glu	Arg	Phe	Leu	Ile	Ala
145				150						155					160
Thr	Gly	Glu	Arg	Pro	Arg	Tyr	Leu	Gly	Ile	Pro	Gly	Asp	Lys	Glu	Tyr
				165					170					175	
Cys	Ile	Ser	Ser	Asp	Asp	Leu	Phe	Ser	Leu	Pro	Tyr	Cys	Pro	Gly	Lys
			180					185					190		
Thr	Leu	Val	Val	Gly	Ala	Ser	Tyr	Val	Ala	Leu	Glu	Cys	Ala	Gly	Phe
		195					200					205			
Leu	Ala	Gly	Ile	Gly	Leu	Asp	Val	Thr	Val	Met	Val	Arg	Ser	Ile	Leu
	210					215					220				
Leu	Arg	Gly	Phe	Asp	Gln	Asp	Met	Ala	Asn	Lys	Ile	Gly	Glu	His	Met
225					230					235					240
Glu	Glu	His	Gly	Ile	Lys	Phe	Ile	Arg	Gln	Phe	Val	Pro	Thr	Lys	Ile
				245					250					255	
Glu	Gln	Ile	Glu	Ala	Gly	Thr	Pro	Gly	Arg	Leu	Lys	Val	Thr	Ala	Lys
			260					265					270		
Ser	Thr	Asn	Ser	Glu	Glu	Thr	Ile	Glu	Asp	Glu	Phe	Asn	Thr	Val	Leu
		275					280					285			
Leu	Ala	Val	Gly	Arg	Asp	Ser	Cys	Thr	Arg	Thr	Ile	Gly	Leu	Glu	Thr
	290					295					300				
Val	Gly	Val	Lys	Ile	Asn	Glu	Lys	Thr	Gly	Lys	Ile	Pro	Val	Thr	Asp
305					310					315					320
Glu	Glu	Gln	Thr	Asn	Val	Pro	Tyr	Ile	Tyr	Ala	Ile	Gly	Asp	Ile	Leu
				325					330					335	
Glu	Gly	Lys	Leu	Glu	Leu	Thr	Pro	Val	Ala	Ile	Gln	Ala	Gly	Arg	Leu
			340					345					350		
Leu	Ala	Gln	Arg	Leu	Tyr	Gly	Gly	Ser	Thr	Val	Lys	Cys	Asp	Tyr	Asp
		355					360					365			
Asn	Val	Pro	Thr	Thr	Val	Phe	Thr	Pro	Leu	Glu	Tyr	Gly	Cys	Cys	Gly
	370					375					380				
Leu	Ser	Glu	Glu	Lys	Ala	Val	Glu	Lys	Phe	Gly	Glu	Glu	Asn	Ile	Glu
385					390					395					400
Val	Tyr	His	Ser	Phe	Phe	Trp	Pro	Leu	Glu	Trp	Thr	Val	Pro	Ser	Arg
				405					410					415	
Asp	Asn	Asn	Lys	Cys	Tyr	Ala	Lys	Val	Ile	Cys	Asn	Leu	Lys	Asp	Asn
			420					425					430		
Glu	Arg	Val	Val	Gly	Phe	His	Val	Leu	Gly	Pro	Asn	Ala	Gly	Glu	Val
		435					440					445			
Thr	Gln	Gly	Phe	Ala	Ala	Ala	Leu	Lys	Cys	Gly	Leu	Thr	Lys	Gln	Gln
	450					455					460				
Leu	Asp	Ser	Thr	Ile	Gly	Ile	His	Pro	Val	Cys	Ala	Glu	Ile	Phe	Thr
465					470					475					480
Thr	Leu	Ser	Val	Thr	Lys	Arg	Ser	Gly	Gly	Asp	Ile	Leu	Gln	Ser	Gly
				485					490					495	

Xaa

<210> 308
 <211> 176
 <212> PRT
 <213> Rattus norvegicus

<400> 308
 Arg Ile His Ala Gly Gly Ala Gly Arg Arg Arg Gly Gly Ala Arg Arg

1	Ala	Gly	Val	Phe	5	Ile	Leu	Leu	Ala	10	His	Pro	Asn	Lys	Lys	15	Gly	Leu	Leu
				20						25						30			
	Arg	Lys	Leu	Ser	Thr	Met	Asn	Asp	Ser	Lys	Asp	Ala	Pro	Lys	Ser	Tyr			
			35					40						45					
	Asp	Phe	Asp	Leu	Ile	Ile	Ile	Gly	Gly	Gly	Ser	Gly	Gly	Leu	Ala	Ala			
		50					55					60							
	Ala	Lys	Glu	Ala	Ala	Lys	Phe	Asp	Lys	Lys	Val	Met	Val	Leu	Asp	Phe			
65						70					75					80			
	Val	Thr	Pro	Thr	Pro	Leu	Gly	Thr	Arg	Trp	Gly	Leu	Gly	Gly	Thr	Cys			
					85					90					95				
	Val	Asn	Val	Gly	Cys	Ile	Pro	Lys	Lys	Leu	Met	His	Gln	Ala	Ala	Leu			
				100					105					110					
	Leu	Gly	Gln	Ala	Leu	Lys	Asp	Ser	Arg	Asn	Tyr	Gly	Trp	Lys	Leu	Glu			
			115					120					125						
	Asp	Thr	Val	Lys	His	Asp	Trp	Glu	Lys	Met	Thr	Glu	Ser	Val	Gln	Asn			
		130					135					140							
	His	Ile	Gly	Ser	Leu	Asn	Trp	Gly	Tyr	Arg	Val	Ala	Leu	Arg	Glu	Lys			
145						150					155					160			
	Lys	Val	Val	Tyr	Glu	Asn	Ala	Tyr	Gly	Lys	Phe	Ile	Gly	Pro	His	Lys			
					165					170					175				

<210> 309
 <211> 498
 <212> PRT
 <213> Rattus norvegicus

<220>
 <221> VARIANT
 <222> 497
 <223> Xaa = Any Amino Acid

<400> 309	Met	Asn	Asp	Ser	Lys	Asp	Ala	Pro	Lys	Ser	Tyr	Asp	Phe	Asp	Leu	Ile			
1					5					10					15				
	Ile	Ile	Gly	Gly	Gly	Ser	Gly	Gly	Leu	Ala	Ala	Ala	Lys	Glu	Ala	Ala			
				20					25					30					
	Lys	Phe	Asp	Lys	Lys	Val	Met	Val	Leu	Asp	Phe	Val	Thr	Pro	Thr	Pro			
			35				40					45							
	Leu	Gly	Thr	Asn	Gly	Gly	Leu	Gly	Gly	Thr	Cys	Val	Asn	Val	Gly	Cys			
		50				55					60								
	Ile	Pro	Lys	Lys	Leu	Met	His	Gln	Ala	Ala	Leu	Leu	Gly	Gln	Ala	Leu			
65					70					75						80			
	Lys	Asp	Ser	Arg	Asn	Tyr	Gly	Trp	Lys	Leu	Glu	Asp	Thr	Val	Lys	His			
				85					90						95				
	Asp	Trp	Glu	Lys	Met	Thr	Glu	Ser	Val	Gln	Asn	His	Ile	Gly	Ser	Leu			
				100					105					110					
	Asn	Trp	Gly	Tyr	Arg	Val	Ala	Leu	Arg	Glu	Lys	Lys	Val	Val	Tyr	Glu			
			115				120						125						
	Asn	Ala	Tyr	Gly	Lys	Phe	Ile	Gly	Pro	His	Lys	Ile	Met	Ala	Thr	Asn			
		130				135						140							
	Asn	Lys	Gly	Lys	Glu	Lys	Val	Tyr	Ser	Ala	Glu	Arg	Phe	Leu	Ile	Ala			
145					150					155						160			
	Thr	Gly	Glu	Arg	Pro	Arg	Tyr	Leu	Gly	Ile	Pro	Gly	Asp	Lys	Glu	Tyr			
				165					170						175				
	Cys	Ile	Ser	Ser	Asp	Asp	Leu	Phe	Ser	Leu	Pro	Tyr	Cys	Pro	Gly	Lys			
			180				185							190					
	Thr	Leu	Val	Val	Gly	Ala	Ser	Tyr	Val	Ala	Leu	Glu	Cys	Ala	Gly	Phe			
			195				200						205						
	Leu	Ala	Gly	Ile	Gly	Leu	Asp	Val	Thr	Val	Met	Val	Arg	Ser	Ile	Leu			
		210				215						220							
	Leu	Arg	Gly	Phe	Asp	Gln	Asp	Met	Ala	Asn	Lys	Ile	Gly	Glu	His	Met			
225					230					235						240			
	Glu	Glu	His	Gly	Ile	Lys	Phe	Ile	Arg	Gln	Phe	Val	Pro	Thr	Lys	Ile			
				245					250						255				
	Glu	Gln	Ile	Glu	Ala	Gly	Thr	Pro	Gly	Arg	Leu	Lys	Val	Thr	Ala	Lys			

			260					265					270			
Ser	Thr	Asn	Ser	Glu	Glu	Thr	Ile	Glu	Asp	Glu	Phe	Asn	Thr	Val	Leu	
		275					280					285				
Leu	Ala	Val	Gly	Arg	Asp	Ser	Cys	Thr	Arg	Thr	Ile	Gly	Leu	Glu	Thr	
	290					295					300					
Val	Gly	Val	Lys	Ile	Asn	Glu	Lys	Thr	Gly	Lys	Ile	Pro	Val	Thr	Asp	
305				310						315					320	
Glu	Glu	Gln	Thr	Asn	Val	Pro	Tyr	Ile	Tyr	Ala	Ile	Gly	Asp	Ile	Leu	
				325					330					335		
Glu	Gly	Lys	Leu	Glu	Leu	Thr	Pro	Val	Ala	Ile	Gln	Ala	Gly	Arg	Leu	
		340						345					350			
Leu	Ala	Gln	Arg	Leu	Tyr	Gly	Gly	Ser	Thr	Val	Lys	Cys	Asp	Tyr	Asp	
	355					360						365				
Asn	Val	Pro	Thr	Thr	Val	Phe	Thr	Pro	Leu	Glu	Tyr	Gly	Cys	Cys	Gly	
370						375					380					
Leu	Ser	Glu	Glu	Lys	Ala	Val	Glu	Lys	Phe	Gly	Glu	Glu	Asn	Ile	Glu	
385				390						395					400	
Val	Tyr	His	Ser	Phe	Phe	Trp	Pro	Leu	Glu	Trp	Thr	Val	Pro	Ser	Arg	
				405					410					415		
Asp	Asn	Asn	Lys	Cys	Tyr	Ala	Lys	Val	Ile	Cys	Asn	Leu	Lys	Asp	Asn	
		420						425					430			
Glu	Arg	Val	Val	Gly	Phe	His	Val	Leu	Gly	Pro	Asn	Ala	Gly	Glu	Val	
	435						440					445				
Thr	Gln	Ala	Leu	Gln	Pro	Leu	Lys	Cys	Gly	Leu	Thr	Lys	Gln	Gln	Leu	
450						455					460					
Asp	Ser	Thr	Ile	Gly	Ile	His	Pro	Val	Cys	Ala	Glu	Ile	Phe	Thr	Thr	
465				470					475						480	
Leu	Ser	Val	Thr	Lys	Arg	Ser	Gly	Gly	Asp	Ile	Leu	Gln	Ser	Gly	Cys	
				485				490						495		

Xaa Gly

<210> 310
 <211> 11
 <212> PRT
 <213> Rattus norvegicus

<400> 310
 Met Asn Asp Ser Lys Asp Ala Pro Lys Ser Tyr
 1 5 10

<210> 311
 <211> 496
 <212> PRT
 <213> Rattus norvegicus

<400> 311
 Met Asn Asp Ser Lys Asp Ala Pro Lys Ser Tyr Asp Phe Asp Leu Ile
 1 5 10 15
 Ile Ile Gly Gly Gly Ser Gly Gly Leu Ala Ala Ala Lys Glu Ala Ala
 20 25 30
 Lys Phe Asp Lys Lys Val Met Val Leu Asp Phe Val Thr Pro Thr Pro
 35 40 45
 Leu Gly Thr Asn Gly Gly Leu Gly Gly Thr Cys Val Asn Val Gly Cys
 50 55 60
 Ile Pro Lys Lys Leu Met His Gln Ala Ala Leu Leu Gly Gln Ala Leu
 65 70 75 80
 Lys Asp Ser Arg Asn Tyr Gly Trp Lys Leu Glu Asp Thr Val Lys His
 85 90 95
 Asp Trp Glu Lys Met Thr Glu Ser Val Gln Asn His Ile Gly Ser Leu
 100 105 110
 Asn Trp Gly Tyr Arg Val Ala Leu Arg Glu Lys Lys Val Val Tyr Glu
 115 120 125
 Asn Ala Tyr Gly Lys Phe Ile Gly Pro His Lys Ile Met Ala Thr Asn
 130 135 140

Asn	Lys	Gly	Lys	Glu	Lys	Val	Tyr	Ser	Ala	Glu	Arg	Phe	Leu	Ile	Ala
145					150					155					160
Thr	Gly	Glu	Arg	Pro	Arg	Tyr	Leu	Gly	Ile	Pro	Gly	Asp	Lys	Glu	Tyr
				165					170					175	
Cys	Ile	Ser	Ser	Asp	Asp	Leu	Phe	Ser	Leu	Pro	Tyr	Cys	Pro	Gly	Lys
			180					185					190		
Thr	Leu	Val	Val	Gly	Ala	Ser	Tyr	Val	Ala	Leu	Glu	Cys	Ala	Gly	Phe
		195					200					205			
Leu	Ala	Gly	Ile	Gly	Leu	Asp	Val	Thr	Val	Met	Val	Arg	Ser	Ile	Leu
	210					215					220				
Leu	Arg	Gly	Phe	Asp	Gln	Asp	Met	Ala	Asn	Lys	Ile	Gly	Glu	His	Met
225					230				235						240
Glu	Glu	His	Gly	Ile	Lys	Phe	Ile	Arg	Gln	Phe	Val	Pro	Thr	Lys	Ile
				245					250					255	
Glu	Gln	Ile	Glu	Ala	Gly	Thr	Pro	Gly	Arg	Leu	Lys	Val	Thr	Ala	Lys
			260					265					270		
Ser	Thr	Asn	Ser	Glu	Glu	Thr	Ile	Glu	Asp	Glu	Phe	Asn	Thr	Val	Leu
		275					280					285			
Leu	Ala	Val	Gly	Arg	Asp	Ser	Cys	Thr	Arg	Thr	Ile	Gly	Leu	Glu	Thr
	290					295					300				
Val	Gly	Val	Lys	Ile	Asn	Glu	Lys	Thr	Gly	Lys	Ile	Pro	Val	Thr	Asp
305					310					315					320
Glu	Glu	Gln	Thr	Asn	Val	Pro	Tyr	Ile	Tyr	Ala	Ile	Gly	Asp	Ile	Leu
				325					330					335	
Glu	Gly	Lys	Leu	Glu	Leu	Thr	Pro	Val	Ala	Ile	Gln	Ala	Gly	Arg	Leu
			340					345					350		
Leu	Ala	Gln	Arg	Leu	Tyr	Gly	Gly	Ser	Thr	Val	Lys	Cys	Asp	Tyr	Asp
		355					360					365			
Asn	Val	Pro	Thr	Thr	Val	Phe	Thr	Pro	Leu	Glu	Tyr	Gly	Cys	Cys	Gly
	370					375					380				
Leu	Ser	Glu	Glu	Lys	Ala	Val	Glu	Lys	Phe	Gly	Glu	Glu	Asn	Ile	Glu
385					390					395					400
Val	Tyr	His	Ser	Phe	Phe	Trp	Pro	Leu	Glu	Trp	Thr	Val	Pro	Ser	Arg
				405					410					415	
Asp	Asn	Asn	Lys	Cys	Tyr	Ala	Lys	Val	Ile	Cys	Asn	Leu	Lys	Asp	Asn
			420					425					430		
Glu	Arg	Val	Val	Gly	Phe	His	Val	Leu	Gly	Pro	Asn	Ala	Gly	Glu	Val
		435					440					445			
Thr	Gln	Ala	Leu	Gln	Pro	Leu	Lys	Cys	Gly	Leu	Thr	Lys	Gln	Gln	Leu
	450					455					460				
Asp	Ser	Thr	Ile	Gly	Ile	His	Pro	Val	Cys	Ala	Glu	Ile	Phe	Thr	Thr
465					470					475					480
Leu	Ser	Val	Thr	Lys	Arg	Ser	Gly	Gly	Asp	Ile	Leu	Gln	Ser	Gly	Cys
				485					490					495	

<210> 312
 <211> 526
 <212> PRT
 <213> Rattus norvegicus

<220>
 <221> VARIANT
 <222> 525
 <223> Xaa = Any Amino Acid

<400> 312
 Met Ala Ala Ile Val Ala Ala Leu Arg Gly Ser Ser Gly Arg Phe Arg
 1 5 10 15
 Pro Gln Thr Arg Val Leu Thr Arg Gly Thr Arg Gly Ala Ala Gly Ala
 20 25 30
 Ala Ser Ala Ala Gly Gly Gln Gln Asn Phe Asp Leu Leu Val Ile Gly
 35 40 45
 Gly Gly Ser Gly Gly Leu Ala Cys Ala Lys Glu Ala Ala Gln Leu Gly
 50 55 60
 Arg Lys Val Ala Val Ala Asp Tyr Val Glu Pro Ser Pro Arg Gly Thr
 65 70 75 80

Lys	Trp	Gly	Leu	Gly	Gly	Thr	Cys	Val	Asn	Val	Gly	Cys	Ile	Pro	Lys
				85					90					95	
Lys	Leu	Met	His	Gln	Ala	Ala	Leu	Leu	Gly	Gly	Met	Ile	Arg	Asp	Ala
			100					105					110		
Gln	His	Tyr	Gly	Trp	Glu	Val	Ala	Gln	Pro	Val	Gln	His	Asn	Trp	Lys
		115					120					125			
Ala	Met	Ala	Glu	Ala	Val	Gln	Asn	His	Val	Lys	Ser	Leu	Asn	Trp	Gly
	130					135					140				
His	Arg	Val	Gln	Leu	Gln	Asp	Arg	Lys	Val	Lys	Tyr	Phe	Asn	Ile	Lys
145					150					155					160
Ala	Ser	Phe	Val	Asn	Glu	His	Thr	Val	His	Gly	Val	Asp	Lys	Ala	Gly
				165					170					175	
Lys	Val	Thr	Gln	Leu	Ser	Ala	Lys	His	Ile	Val	Ile	Ala	Thr	Gly	Gly
			180					185					190		
Arg	Pro	Lys	Tyr	Pro	Thr	Gln	Val	Lys	Gly	Ala	Leu	Glu	His	Gly	Ile
		195					200					205			
Thr	Ser	Asp	Asp	Ile	Phe	Trp	Leu	Lys	Glu	Ser	Pro	Gly	Lys	Thr	Leu
	210					215					220				
Val	Val	Gly	Ala	Ser	Tyr	Val	Ala	Leu	Glu	Cys	Ala	Gly	Phe	Leu	Thr
225					230					235					240
Gly	Ile	Gly	Leu	Asp	Thr	Thr	Val	Met	Met	Arg	Ser	Val	Pro	Leu	Arg
				245				250						255	
Gly	Phe	Asp	Gln	Gln	Met	Ala	Ser	Leu	Val	Thr	Glu	His	Met	Glu	Ser
			260					265					270		
His	Gly	Thr	Arg	Phe	Leu	Lys	Gly	Cys	Val	Pro	Ser	Leu	Ile	Arg	Lys
		275					280					285			
Leu	Pro	Thr	Asn	Gln	Leu	Gln	Val	Thr	Trp	Glu	Asp	Leu	Ala	Ser	Gly
	290					295					300				
Lys	Glu	Asp	Val	Gly	Thr	Phe	Asp	Thr	Val	Leu	Trp	Ala	Ile	Gly	Arg
305					310					315					320
Val	Pro	Glu	Thr	Arg	Asn	Leu	Asn	Leu	Glu	Lys	Ala	Gly	Val	Asn	Thr
				325					330					335	
Asn	Pro	Lys	Asn	Gln	Lys	Ile	Ile	Val	Asp	Ala	Gln	Glu	Ala	Thr	Ser
			340					345					350		
Val	Pro	His	Ile	Tyr	Ala	Ile	Gly	Asp	Val	Ala	Glu	Gly	Arg	Pro	Glu
		355					360					365			
Leu	Thr	Pro	Thr	Ala	Ile	Lys	Ala	Gly	Lys	Leu	Leu	Ala	Gln	Arg	Leu
	370					375					380				
Phe	Gly	Lys	Ser	Ser	Thr	Leu	Met	Asn	Tyr	Ser	Asn	Val	Pro	Thr	Thr
385					390					395					400
Val	Phe	Thr	Pro	Leu	Glu	Tyr	Gly	Cys	Val	Gly	Leu	Ser	Glu	Glu	Glu
				405					410					415	
Ala	Val	Ala	Leu	His	Gly	Gln	Glu	His	Ile	Glu	Val	Tyr	His	Ala	Tyr
			420					425					430		
Tyr	Lys	Pro	Leu	Glu	Phe	Thr	Val	Ala	Asp	Arg	Asp	Ala	Ser	Gln	Cys
		435					440					445			
Tyr	Ile	Lys	Met	Val	Cys	Met	Arg	Glu	Pro	Pro	Gln	Leu	Val	Leu	Gly
	450					455					460				
Leu	His	Phe	Leu	Gly	Pro	Asn	Ala	Gly	Glu	Val	Thr	Gln	Gly	Phe	Ala
465					470					475					480
Leu	Gly	Ile	Gln	Cys	Gly	Ala	Ser	Tyr	Ala	Gln	Val	Met	Gln	Thr	Val
				485					490					495	
Gly	Ile	His	Pro	Thr	Cys	Ser	Glu	Glu	Val	Val	Lys	Leu	His	Ile	Ser
			500					505					510		
Lys	Arg	Ser	Gly	Leu	Asp	Pro	Thr	Val	Thr	Gly	Cys	Xaa	Gly		
		515					520					525			

<210> 313
 <211> 499
 <212> PRT
 <213> Sus Scrofa

<220>
 <221> VARIANT
 <222> 498
 <223> Xaa = Any Amino Acid

<400> 313

Met	Asn	Gly	Ala	Glu	Glu	Leu	Pro	Glu	Met	Tyr	Asp	Tyr	Asp	Leu	Ile
1				5					10					15	
Ile	Ile	Gly	Gly	Gly	Ser	Gly	Gly	Leu	Ala	Ala	Ala	Lys	Glu	Ala	Ala
		20						25					30		
Arg	Phe	Asn	Lys	Arg	Val	Met	Val	Leu	Asp	Phe	Val	Thr	Pro	Thr	Pro
		35					40					45			
Leu	Gly	Thr	Arg	Trp	Gly	Leu	Gly	Gly	Thr	Cys	Val	Asn	Val	Ser	Cys
	50					55					60				
Ile	Pro	Lys	Lys	Leu	Met	His	Gln	Ala	Ala	Leu	Leu	Gly	Gln	Ala	Leu
65					70					75					80
Arg	Asp	Ser	Arg	Asn	Tyr	Gly	Trp	Asn	Val	Glu	Glu	Thr	Ile	Lys	His
				85				90						95	
Asp	Trp	Glu	Arg	Met	Thr	Glu	Ala	Val	Gln	Asn	His	Ile	Gly	Ser	Leu
			100					105					110		
Asn	Trp	Gly	Tyr	Arg	Val	Ala	Leu	Arg	Glu	Lys	Lys	Val	Thr	Tyr	Glu
		115					120					125			
Asn	Ala	Tyr	Gly	Gln	Phe	Val	Gly	Pro	His	Arg	Ile	Lys	Ala	Thr	Asn
	130					135					140				
Asn	Lys	Gly	Lys	Glu	Lys	Ile	Tyr	Ser	Ala	Glu	Lys	Phe	Leu	Ile	Ala
145					150					155					160
Thr	Gly	Glu	Arg	Pro	Arg	Tyr	Leu	Gly	Ile	Pro	Gly	Asp	Lys	Glu	Tyr
				165				170						175	
Cys	Ile	Ser	Ser	Asp	Asp	Leu	Phe	Ser	Leu	Pro	Tyr	Cys	Pro	Gly	Lys
			180					185					190		
Thr	Leu	Val	Val	Gly	Ala	Ser	Tyr	Val	Ala	Leu	Glu	Cys	Ala	Gly	Phe
		195					200					205			
Leu	Ala	Gly	Ile	Gly	Leu	Asp	Val	Thr	Val	Met	Val	Arg	Ser	Ile	Leu
	210					215					220				
Leu	Arg	Gly	Phe	Asp	Gln	Asp	Met	Ala	Asn	Lys	Ile	Gly	Glu	His	Met
225					230					235					240
Glu	Glu	His	Gly	Ile	Lys	Phe	Ile	Arg	Gln	Phe	Val	Pro	Ile	Lys	Val
				245				250						255	
Glu	Gln	Ile	Glu	Ala	Gly	Thr	Pro	Gly	Arg	Leu	Arg	Val	Val	Ala	Gln
			260					265					270		
Ser	Thr	Asn	Ser	Glu	Glu	Ile	Ile	Glu	Gly	Glu	Tyr	Asn	Thr	Val	Met
		275					280					285			
Leu	Ala	Ile	Gly	Arg	Asp	Ala	Cys	Thr	Arg	Lys	Ile	Gly	Leu	Glu	Thr
	290					295					300				
Val	Gly	Val	Lys	Ile	Asn	Glu	Lys	Thr	Gly	Lys	Ile	Pro	Val	Thr	Asp
305					310					315					320
Glu	Glu	Gln	Thr	Asn	Val	Pro	Tyr	Ile	Tyr	Ala	Ile	Gly	Asp	Ile	Leu
				325				330						335	
Glu	Asp	Lys	Val	Glu	Leu	Thr	Pro	Val	Ala	Ile	Gln	Ala	Gly	Arg	Leu
			340					345					350		
Leu	Ala	Gln	Arg	Leu	Tyr	Ala	Gly	Ser	Thr	Val	Lys	Cys	Asp	Tyr	Glu
		355					360					365			
Asn	Val	Pro	Thr	Thr	Val	Phe	Thr	Pro	Leu	Glu	Tyr	Gly	Ala	Cys	Gly
	370					375					380				
Leu	Ser	Glu	Glu	Lys	Ala	Val	Glu	Lys	Phe	Gly	Glu	Glu	Asn	Ile	Glu
385					390					395					400
Val	Tyr	His	Ser	Tyr	Phe	Trp	Pro	Leu	Glu	Trp	Thr	Ile	Pro	Ser	Arg
				405					410					415	
Asp	Asn	Asn	Lys	Cys	Tyr	Ala	Lys	Ile	Ile	Cys	Asn	Thr	Lys	Asp	Asn
			420					425					430		
Glu	Arg	Val	Val	Gly	Phe	His	Val	Leu	Gly	Pro	Asn	Ala	Gly	Glu	Val
		435					440					445			
Thr	Gln	Gly	Phe	Ala	Ala	Ala	Leu	Lys	Cys	Gly	Leu	Thr	Lys	Lys	Gln
	450					455					460				
Leu	Asp	Ser	Thr	Ile	Gly	Ile	His	Pro	Val	Cys	Ala	Glu	Val	Phe	Thr
465					470					475					480
Thr	Leu	Ser	Val	Thr	Lys	Arg	Ser	Gly	Ala	Ser	Ile	Leu	Gln	Ala	Gly
				485					490					495	
Cys	Xaa	Gly													